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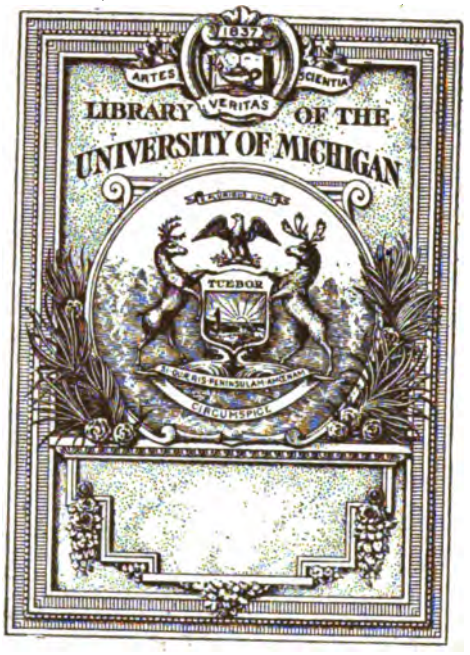
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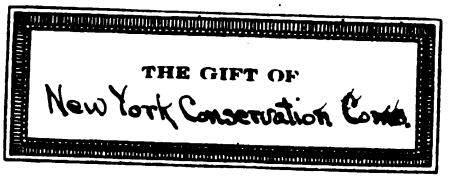
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STATE OF NEW YORK

THIRD ANNUAL REPORT

OF THE

CONSERVATION COMMISSION

1913

DIVISIONS OF LANDS AND FORESTS AND FISH AND GAME

ALBANY
J. B. LYON COMPANY, PRINTERS
1914

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THIRD ANNUAL REPORT

OF THE

CONSERVATION COMMISSION

ALBANY, N. Y., *January* 15, 1914.

HON. ROBERT F. WAGNER, *President of the Senate:*

Herewith in pursuance to law we transmit to you the annual report of the Conservation Commission for the fiscal year ending September 30, 1913.

Respectfully yours,
CONSERVATION COMMISSION,
By GEORGE E. VAN KENNEN,
Chairman.

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STATE OF NEW YORK

CONSERVATION COMMISSION

GEORGE E. VAN KENNEN, Ogdensburg
JAMES W. FLEMING, Troy..... } *Commissioners*
JOHN D. MOORE, New York.....

CHARLES H. JACKSON, Albany
THOMAS H. GUY, Troy..... } *Deputy Commissioners*
JAMES J. FOX, Brooklyn.....

ALBERT E. HOYT, Albany.....*Secretary to Commission*
JOHN J. FARRELL, Troy.....*Assistant Secretary*
JEREMIAH F. CONNOR, Oneida.....*Counsel to Commission*
RICHARD W. SHERMAN, Utica.....*Chief Engineer*
MATTHEW H. HOOVER, Lockport.....*Chief of Publication*

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THIRD ANNUAL REPORT

OF THE

CONSERVATION COMMISSION

1913

TRANSMITTED TO THE LEGISLATURE JANUARY 15, 1914

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THIRD ANNUAL REPORT

OF THE

CONSERVATION COMMISSION

To the Legislature:

Herewith follows our report for the fiscal year ending September 30, 1913:

DEPARTMENTAL REVENUES

This department continues to be one of the great revenue providers of the State. Total receipts for the last fiscal year were $316,407.87, as against $256,002.84 in 1912 and $258,226.65 in 1911. To this increase of $60,000 over the previous year, hunters' licenses contributed largely — $161,490 this year as against $152,052 the year before. It is deemed likely that this item will run near to $200,000 next year. Net licenses brought in over $15,000 this year as against less than $9,000 the year before. All details of departmental finances appear in the financial statement appended to this report.

Conservatively computed, the product of the State fish hatcheries and State game farm for the fiscal year ending September 30, 1913, including brood stock, had a commercial value of at least $300,600. Add to this the departmental revenues turned into the State Treasury during the same fiscal year — $316,407.87 — and we have a total, in direct revenue or its equivalent, of $617,007.87.

The total appropriations for this department, regular session, 1913, were $658,126.66. Total expenditures for the fiscal year ending September 30, 1913, $744,103.99.

It will readily be seen that when the Conservation Commission's plan of utilization of ripe timber, elsewhere referred to in this year's annual report, as well as in last year's, is made effective, this department will become far more than self-supporting.

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STATE DEVELOPMENT OF WATER RESOURCES

In submitting this, our third annual report, permit us to repeat what we said a year ago: "There yet remains to be enacted conservation legislation covering the all-important problem of development and utilization of the State's water resources. No question of graver moment will come before this or any other Legislature of our time."

This great problem of hydro-electric development is measurably nearer solution than a year ago. The march of events has been, on the whole, propitious.

The Long Sault charter has been repealed; the complicated State, national and international situation at Niagara Falls is being studied by a special legislative committee, with which this Commission will cordially co-operate; the adoption of the Burd amendment, permitting the construction of storage reservoirs in the Forest Preserve, will materially broaden the range of conservation probabilities; last, but not least, the Legislature has affirmed, in the passage of the Capital District hydro-electric bill, and by decisive majorities, the principle of State development and distribution of 1,500,000 horse-power now unused.

The Conservation Commission, in 1912, formulated and presented to the Legislature, in the so-called Bayne bill, a comprehensive plan of State development. The Bayne bill contemplated state-wide development, by the State itself, of a waste energy estimated to be annually equal to that produced by the consumption of 15,000,000 tons of coal. It empowered the Conservation Commission to acquire lands, water privileges and water rights, to construct transmission lines for the purpose of delivering electrical energy to the various municipalities throughout the State; such municipalities being authorized to enter into contract with the Commission for the use of power so transmitted, the maximum cost to the ultimate consumer being fixed by the Conservation Commission. The Bayne bill further provided that each municipality pay its proportionate share of the cost of production and transmission, including a charge for interest, upkeep, maintenance and operation, with an amount sufficient to amortize the investment in from thirty to fifty years. No municipality would pay

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taxes on anything but its actual municipal uses of light and power. These provisions of the Bayne bill protected the State on its part; the municipality, on its part, being protected by a requirement that, before any municipality might enter into such a contract, it must be approved by popular referendum vote.

The Bayne bill received the approval of the Senate of 1912, but failed in the Assembly. It was suggested that so vast a project as state-wide hydro-electric development ought first to be tried out in a territory more circumscribed in area, and one where all the facts and results incident thereto might be readily and closely followed by everybody.

THE CAPITAL DISTRICT BILL

Thereupon the Commission, in 1913, recommended to the Legislature the enactment of the so-called Capital District hydro-electric bill. This was the Bayne bill in miniature; the basic principle was precisely the same, and the same state-wide development, by the State itself, was provided for; but the initial hydro-electric development was to be within a restricted area, namely, the so-called Capital District, including Albany, Troy, Schenectady and vicinity. This district presented a two-fold advantage, namely, close proximity to the seat of the State government, where results might be studied at first hand, and like close proximity to Crescent and Vischer Ferry, whence surplus waters of the Barge canal were to be derived and utilized for cheaper light, heat and power.

The Capital District bill, commonly known by the name of Senator Murtaugh, its introducer, had from the start a wide-spread popular support, but a determined — not to say a venomous — opposition on the part of interests engaged in the manufacture and sale of electricity for light and power. Every device known to men long skilled in smothering legislation was brought to bear to prevent the passage of the Murtaugh bill in the Legislature of 1913. After it had passed the Senate on March 27, by a vote of 35 ayes to 8 noes, the same interests laid siege to the Assembly Rules Committee in a final effort to smother it there, but without avail. The Assembly passed the Murtaugh bill on May 1 by a vote of 97 ayes to 21 noes. Both in the Senate and

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in the Assembly the vote was nonpartisan in character. It had the support of Democrats, Republicans and Progressives alike.

ACCEPTED STATE POLICY

We may fairly conclude, therefore, that the underlying principle of the Murtaugh bill is now the accepted policy of the State. To that underlying principle, the Democratic, the Republican, and the Progressive parties stand committed by their platforms. To that underlying principle, Senators and Assemblymen, regardless of party, assented, thus passing the Murtaugh bill by a great majority in both branches of the Legislature. To that underlying principle, the then Governor, in his memorandum vetoing the Murtaugh bill, made no dissent or objection — declaring on the other hand that "my sympathy is now and has been strongly in favor of the purposes of this bill."

Governor Sulzer's chief objections, he said, were based on doubt as to the sufficiency of water at Crescent and Vischer Ferry at certain seasons of the year; fear that the Capital District plan might cripple the efficiency of the Barge canal, and belief that the first development should be at the Long Sault rather than at Vischer Ferry. These and all other objections have been met severally and collectively, over and again, during the progress of the Murtaugh bill through the Legislature.

Subsequent independent investigations have sustained the Commission's views on these matters in all respects.

INCONSISTENCY OF OPPONENTS

Those who opposed the Bayne bill on the ground that it took in too much territory, opposed the Murtaugh bill on the ground that it took in too little territory. Those who opposed the Murtaugh bill on the ground that there might not be enough water at Crescent and Vischer Ferry — despite all the engineering evidence to the contrary — would no doubt oppose a bill for a development at Long Sault on the ground that there would be too much water there.

Equally absurd is the plight of those who in the same breath inform us that State hydro-electric development "will never

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amount to anything" or "will be a flat failure from the start," and that "it will ruin private business." Obviously, these contentions cannot both be true, and experience with the Canadian hydro-electric public enterprise demonstrates that neither is true.

It will never be possible to frame a State hydro-electric development law which will please those who, for private and personal reasons, do not want the State to embark upon hydro-electric development. But it ought to be possible for the Legislature this year, in view of the progress already achieved, to write into law a measure along the general lines of the Bayne and the Murtaugh bills, sacrificing not one iota of the underlying principle — that the State's undeveloped water resources belong to the people and should be developed by the State for the whole people, to give cheaper light, heat and power.

Construction by stages has been the policy advocated by the Commission at all times. Crescent and Vischer Ferry dams were selected, among other reasons, for commencing the work, because the State at these points owns the entire water-power rights, and the cost of making the trial would be a minimum in the Capital District. The power has been created by the construction of two dams erected for the purpose of canalizing two stretches of the Mohawk river to form parts of the Barge canal. Unless the water is made to generate power it will waste its energy in running over the tops of the dams.

THE BASIC PRINCIPLE

In last year's report, concerning all canal powers, we said: "Important and intrinsically valuable as they are, it must be kept in mind that their development and operation is a secondary matter, entirely subordinate to the use of the canal as a medium of commerce." This has been and will continue to be the basic principle of any policy that the Commission advocates, with reference to canal waters. The Murtaugh hydro-electric bill embodies full recognition of this principle and would protect the canal in every way.

Many large water powers, totalling over 100,000 H. P., have become the property of the State through purchase or creation in the construction of the canal system. These powers are located

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in close proximity to large centers of population, and are scattered with considerable uniformity along the entire length of the canal. Thus, in the Capital District group of canal powers, the total economic development at Troy, Waterford, Crescent and Vischer Ferry is about 45,000 H. P. This is easily available for use to Hudson on the south, Saratoga Springs on the north and Amsterdam and Johnstown on the west.

In the Utica group are the Mindenville, Little Falls, Nine Mile creek and Delta powers with a total economic development of about 12,000 H. P. readily available for use in Rome, Utica, Ilion, Herkimer, Little Falls and nearby municipalities.

In the Oswego river group are the powers on the Oswego river. Adjudication between the State and all the riparian owners is not yet complete, but it is probably safe to assume that the State will own 20,000 or 25,000 H. P. on the Oswego river. This power is best available for use in the municipalities of the Oswego valley, in Syracuse and vicinity, eastward as far as Oneida and westward to Auburn.

The amount of state-owned canal power that will be available at Seneca Falls, Waterloo, Rochester, Medina and Lockport cannot yet be determined, but it will probably be not less than 20,000 H. P., which will be available to municipalities within 30 miles of the canal on either side, using a distribution voltage of only 33,000.

The Murtaugh hydro-electric bill is State-wide in scope, though intended to be used only for the initiation and trial of a State hydro-electric policy, leaving the coupling up of these powers by the general high tension system, the development of other State-owned powers, and the extension of the system to the more remote parts of the State, until such time as the people shall have become fully convinced of the adaptability of the policy to our economic and political conditions.

THE TREND OF THE TIMES

The Commission has heretofore pointed out that "if the furnishing of hydro-electric power by a State or municipality for public and private uses is socialistic, so is the furnishing of water for public and private uses, and so are many other State and mu-

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nicipal activities" that we have specified. That this view is held by a large and increasing part of the population of the United States is shown by the appended table:

TABLE SHOWING THE NUMBER OF MUNICIPAL ELECTRIC LIGHT AND POWER PLANTS IN EACH STATE OF THE UNITED STATES

	1907	1913		1907	1913
Alabama	28	35	Nebraska	25	52
Arkansas	13	18	Nevada	..	1
Arizona	..	1	New Hampshire	4	2
California	14	14	New Jersey	7	11
Colorado	7	11	New Mexico	..	3
Connecticut	5	6	New York	47	49
Delaware	6	6	North Carolina	36	43
Florida	13	15	North Dakota	8	9
Georgia	59	69	Ohio	105	108
Idaho	2	2	Oklahoma	14	52
Illinois	112	89	Oregon	11	8
Indiana	68	69	Pennsylvania	45	41
Iowa	51	57	Rhode Island	1	1
Kansas	32	72	South Carolina	17	17
Kentucky	14	14	South Dakota	8	13
Louisiana	21	23	Tennessee	28	27
Maine	4	5	Texas	9	17
Maryland	8	13	Utah	9	14
Massachusetts	24	31	Vermont	13	12
Michigan	104	107	Virginia	14	14
Minnesota	92	95	Washington	6	10
Mississippi	39	41	West Virginia	5	6
Missouri	58	61	Wisconsin	64	74
Montana	2	2	Wyoming	..	2
Totals				1,252	1,443

In Georgia and Minnesota over half the municipalities having electric service own their own plants. In Ohio, Michigan and North Carolina more than one-third, and in Indiana and Nebraska

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not quite one-third of the electrically lighted municipalities own their own plants. The municipal consumption of electricity bears a much larger ratio to the total consumption of electric power furnished by the municipal plant than the water consumed for municipal uses bears to the total water consumed from the municipal water works. Hence, there is greater reason for the municipality's supplying its own electric needs, and incidentally those of its people.

PROGRESS IN THE PROVINCE OF ONTARIO

The work of the Hydro Electric Power Commission of the Province of Ontario, Canada, continues to exhibit phenomenal growth. The increase in use of power from the government system is illustrated by the chart (Fig. I), showing the load upon the system each month from the time current was first turned on to October 31, 1913.

The financial program laid out by the Ontario Commission, and embodied in law, is being strictly followed, and in order to comply therewith the prices at which power is delivered to the municipalities were reduced for 1913 in some cases 20 per cent. By law, these prices must be sufficient to make the system entirely self-sustaining, including the retirement of the bonds at maturity. No tax or burden of any sort is to be laid upon the people for the purposes of the hydro-electric system. The Commission is practically overwhelmed with applications for extensions, and to meet the demands in the Niagara district is increasing the capacity of its high tension lines from Niagara Falls to St. Thomas and extending them from St. Thomas to Windsor, 235 miles from Niagara Falls.

Windsor is just across the river from Detroit, Mich., and being practically a Great Lakes port, coal is low in price. The entrance of hydro-electric power into this field under such conditions indicates that the State of New York will be covered by a network of interconnected electric wires energized from a few central stations, and that this work will be done either by private corporations or by the State. The only question is, what agency our people desire to have employed to accomplish the end.

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LONG DISTANCE TRANSMISSION

Through the development of long distance transmission, close relation of the water powers to the market has ceased to be the governing consideration.

Niagara power is transmitted to Syracuse and Oswego, 200 miles, at 60,000 volts; the Southern Sierras Power Company transmits power from Bishop, Cal., to San Bernardino, Cal., 238 miles, at 150,000 volts; the Province of Ontario has been delivering power from Niagara Falls to St. Thomas, 130 miles, and has under construction the continuation of its line to Windsor, 235 miles, at 110,000 volts. Manufacturers have perfected machinery for 165,000 volts which makes power transmission for much greater distances feasible.

Power from the Long Sault or from the Niagara river could be economically and feasibly delivered and used in New York City.

PROMPT ACTION IS NECESSARY

It is physically and economically practicable to loop together the water powers of the State by a network of electrical conductors which while serving practically every municipality, will be required to transmit the electrical energy much less distances than other systems in daily operation.

This is an economic problem, rather than a question of partisan politics. The State of New York must either develop its natural resources for the benefit of the many, or else surrender them to be exploited by private monopoly for the enrichment of the few.

There is no middle ground. Nor is there room for delay. Prompt action there must be, for once large investments of capital have been made, in the acquisition and development of these unused resources, it will be too late for the State to act; our priceless heritage will be forever lost.

WATER STORAGE

At the last general election a concurrent resolution of the Senate and Assembly was adopted amending section seven of article seven of the Constitution in relation to storage reservoirs and

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hydraulic developments in the forest preserve. The resolution was in the following form:

"That section seven of article VII of the Constitution be amended to read as follows:

"'Forest preserve, section 7. The lands of the State, now owned or hereafter acquired constituting the forest preserve as now fixed by law, shall be forever kept as wild forest lands. They shall not be leased, sold or exchanged, or be taken by any corporation, public or private, nor shall the timber thereon be sold, removed or destroyed. * *But the Legislature may by general laws provide for the use of not exceeding three percentum of such lands for the construction and maintenance of reservoirs for municipal water supply, for the canals of the State and to regulate the flow of streams. Such reservoirs shall be constructed, owned and controlled by the State, but such work shall not be undertaken until after the boundaries and high flow lines thereof shall have been accurately surveyed and fixed, and after public notice, hearing and determination that such lands are required for such public use. The expense of any such improvements shall be apportioned on the public and private property and municipalities benefited to the extent of the benefits received. Any such reservoir shall always be operated by the State, and the Legislature shall provide for a charge upon the property and municipalities benefited for a reasonable return to the State upon the value of the rights and property of the State used and the services of the State rendered, which shall be fixed for terms of not exceeding ten years and be readjustable at the end of any term. Unsanitary conditions shall not be created or continued by any such public works. A violation of any of the provisions of this section may be restrained at the suit of the people or with the consent of the supreme court in appellate division, on notice to the attorney-general at the suit of any citizen.'"*

It will be observed that the purpose of this amendment was to authorize the use of a small percentage of the State lands for storage reservoir purposes. It is generally conceded that the regulation of the stream flow of our numerous rivers will greatly inure to the benefit of the State and to its citizens.

* That portion of the above section printed in italics is new.

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The great volume of water which periodically overflows our streams is a menace to property, both public and private. The disastrous floods of last year destroyed property of immense value. No State suffers more in this respect than New York because of the great number of inland streams, and because a very large proportion of our population resides along and adjacent to the course of our numerous rivers. The destructive agency of spring freshets is almost annually felt in the valleys of the Hudson, Mohawk, Genesee, Oswego, Black and Raquette and elsewhere. Therefore, the menace to private and public property from flood conditions can be regarded as State-wide in extent.

It will, likewise, be conceded, we believe, that the regulation of stream flow by the construction of impounding reservoirs will also greatly benefit the public health. The control of the flow of the water in our rivers so that the volume thereof will be more evenly distributed throughout the year will certainly furnish purer and more wholesome water for the use of our municipalities; moreover, the disease and pestilence which often follow great floods will be largely avoided.

It is apparent, therefore, that public safety, public health and public welfare will be greatly conserved by impounding the flood of waters of our streams, and this is sufficient to justify the State in undertaking this work. In addition to these benefits, the construction of reservoirs and the regulation of stream flow will result in the creation of a vast amount of hydraulic power. In some instances this power will be created at the point of discharge; and in all cases, if the reservoirs are properly constructed and operated, the power capacity of our rivers will be greatly increased.

On these rivers where water powers have been developed this increase of power will necessarily benefit the water power owners. This increase of power available to the owners of water powers is not a public but a private benefit. It will be used for private business and enterprise. It appears, therefore, that the benefit derived from the regulation of our streams is in part public and in part private.

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The provisions of the Constitution contemplate that these improvements in the forest preserve counties shall be made by the State itself, constructed by the State and controlled by it. This, of course, means that the State must bear the expense of the construction of these reservoirs.

It is necessary that the State adopt some definite policy in relation to this proposed work. This involves the use which the State intends to make of the hydraulic power created by such construction.

We believe that the wisest policy for the State to pursue is to utilize this power for the benefit of all the people, and not permit it to be used for private gain.

With respect to the increased power available along the streams, the owners should be required to pay to the State an amount determined upon as the value of the benefits which each owner receives. In this way the State would in time be reimbursed for its expenditures, by persons benefited thereby.

NIAGARA RIVER POWER

In the second annual report of the Commission is given the history and present status of power development from the waters of Niagara river. As a result of its investigations, the Commission believes that the charters of the corporations to which privileges have been granted by the State can be and should be amended so as to require: Full economic use of water granted; diligent prosecution of full development; and complete definition of privileges granted. To this end, the Commission recommends that laws be passed amending the charter of the Niagara Falls power companies by limiting their diversion rights to their present uses, and amending the charters of all companies that have not already expired by limitation, by completely defining grants where necessary and by fixing a reasonable time limit at the end of which the charters shall expire, unless the proposed works shall have been prosecuted diligently to completion.

The State of New York must resolutely maintain all its rights in the waters of the Niagara river, as to power distribution.

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DIVISION OF LANDS AND FORESTS

The State of New York owns today over a million and three quarters acres in the Forest Preserve counties, of which all but about three hundred and eleven thousand acres lie in the Adirondack and Catskill parks. Toward this vast tract, the State bears the relation of policeman, to prevent the destruction of the forests by theft of timber; of fireman, to prevent their destruction by fire; of watchman, to detect fire danger in its incipiency, and of forester, to restock, replenish and renew the wooded areas.

The Commission is charged with protecting from fire approximately seven and a quarter million acres in the Adirondack and Catskill sections.

The forest field force, having charge of fire fighting, trespass prevention, etc., varies in number according to the season; there are from 65 to 70 rangers ordinarily employed when the fire danger is greatest, and 25 to 30 when it is least. Their work is supplemented by 49 mountain station observers whose duty it is to detect and report forest fires at once by telephone, thereby preventing great disastrous conflagrations which consume large areas.

FOREST FIRES

Despite all these precautions, which have demonstrated their value a thousand times over, the summer and early fall of 1913 will be remembered as among the worst, as to forest fires, in recent years. Owing to the extreme drought, which made the conditions in 1913 comparable with those of 1908 (the last great fire year), the total of forest fires reported for the past fire season was 688, as against 605 in 1908. Fires reported which burned over one acre in area were 528 in 1913, as against 605 in 1908. Fires which burned over less than an acre were not reported in 1908. In all respects, the fire season of 1913, while it severely taxed the endurance of the fire fighters and the resources of the State, compares advantageously with other great fire years:

	Damage caused by forest fires	Acres burned	Cost of extinguishing
1903	$864,082	464,189	$153,763 95
1908	802,135	368,072	189,660 00
1913	51,445	54,796	43,203 20

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This great reduction in acreage burned, in damage, and in cost, demonstrates the efficiency of the State's fire protective work, and vindicates the observation station system, which, this year, has withstood the supreme test.

Of these 688 fires, only two were not speedily controlled. Of these, the larger was in Essex county; it covered approximately 17,000 acres, was ten miles in width, but the damage was largely confined to about three hundred and seventy-five acres of timber land. This fire occurred in an old fire slash and so far as the future is concerned, its effect has been to decrease greatly fire danger in that locality.

The State is greatly indebted for aid rendered by United States troops from the Plattsburg barracks, in fighting these fires, of which indebtedness this Commission has already made public acknowledgment.

Fires Caused by Carelessness

Fully 85 per cent. of all the forest fires during the last year were preventable. One-third of them were caused by careless handling of cigars, cigarettes and tobacco; another fifth by carelessness with camp-fires.

Every lover of the out-of-doors should co-operate with this Commission in its efforts, through a "campaign of education," to put a stop to this wanton, wicked destruction of the "people's playground."

More rangers, the forests undoubtedly need; but fewer discarded lighted cigars and neglected camp-fires are quite as necessary.

THE USE OF OPEN CAMPS

The Commission has taken an advance step for the increased utilization of the forest preserve by the public generally, through the adoption of rules permitting the construction and use of open camps. Heretofore, tents only had been permitted. But many, desiring to spend a few days in the woods, found it impossible to pack and carry tents to their destination.

Under the rules no trail or open camp can be built without written permission of the Commission. All camps must bear a conspicuous sign: "This camp is the property of the State of

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New York and is open to the public." Further rules prohibit exclusiveness and require a general use and enjoyment of the open camps, while insuring, however, to State employees engaged in fighting fire a first claim to occupancy.

TRESPASS DECREASING

Trespass on State land is decreasing, both in number of cases and in value of material. Sixteen cases were reported, this year, with a total value of material computed at $2,008.25. There was but one case of deliberate theft, and this trespasser was promptly detected, only $14.93 worth of timber having been cut. Ten of the sixteen cases reported involved disputed title; and the same is probably true of a majority of trespass cases, at the present time.

The following comparative table shows conditions as to trespass, in recent years:

	Trespass cases reported	Computed value of material	Average damag per case
1909	83	$39,063 07	$470 64
1910	104	20,054 29	192 82
1911	46	1,499 20	32 59
1912	27	502 23	18 60
1913	16	2,008 25*	125 51

It is obviously unfair and improper that trespass should largely be caused by uncertainty of boundary lines. We renew our recommendation of last year, that sufficient appropriations be allowed for a careful survey to determine for all time, the metes and bounds of the State's property, and also for a valuation survey whereby the monetary value may be accurately determined.

DECREASED TIMBER CUT — THE REMEDY

The timber cut of the State of New York has decreased from 1,250,000,000 feet in 1908 to less than 1,000,000,000 feet in 1912. The cut, however, is approximately five times the annual growth, and the consumption is at least 16 times the growth. These are facts whose serious import is all too apparent.

* Four-fifths of this was in one big case, which of course makes the average abnormal.

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If it were possible to classify the Forest Preserve by areas, part to be protective, and part to be used for wood production, the needs of the present and the future would be far better conserved than can be done under the terms of a Constitution adopted two decades ago, excellent in its intent, and which admirably served its purpose, but which should now be modified to meet greatly changed economic and general conditions, and especially to coincide with modern thought along the lines of scientific forestry.

Cutting should be confined to selected trees, under State inspection, and all sales should be by competitive bidding. Such a plan would yield a direct revenue to the State of $1,000,000 per annum (250,000,000 feet, the annual forest crop now going to waste, at an average of $4 per thousand stumpage), to say nothing of increased business and employment to labor; and so far from injuring the forests, we now know scientific forestry and selective cutting to be their salvation.

Utilization of Ripe Timber

Estimating the fixed carrying charges to the State of the Forest Preserve at $365,000 per annum, the proposed utilization of ripe timber would wipe out this deficit and substitute a net annual income of $635,000.

We therefore renew our recommendations of last year, for the utilization of ripe timber; and also for the removal of dead and down timber within the Forest Preserve.

LEASING OF CAMP SITES

For like reasons — benefit to the Forest Preserve, better administration, and revenue possibilities — we renew our recommendations for the leasing of camp sites within the Preserve, and for the assembling, under the jurisdiction of this Commission, of the 130,000 acres of State land, in small, scattered parcels, at present serving no useful purpose to the State or to any department thereof. Much of this land might be judiciously reforested, while other parcels might be leased.

REFORESTATION

The total number of trees supplied to private owners and to State institutions for reforestation, since 1908, when the State

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began this work, is 12,014,635 trees, which would reforest approximately 12,000 acres.

The possibilities, and the desirability, of indefinitely enlarging the reforestation work of the State, speak for themselves.

Within the Forest Preserve itself are 120,000 acres of denuded land, of which only 3,400 acres have been reforested.

The State has to-day in its nine nurseries (56 acres) 28,000,000 trees — about nine million more than last year and twelve million more than in 1911. There will be available for use the coming year 7,000,000 trees, 2,000,000 of which can be planted on State land. Trees sold to private owners were 3,242,200 this year, as against 2,970,910 in 1912 and 1,670,370 in 1911. Trees planted on State lands this year were but 76,000 as against 1,346,500 in 1912 and 120,000 in 1911.

This was due to lack of funds adequate to carry on the work. It is highly important that sufficient appropriations be allowed, as in work of this nature not to progress is to retrogress. A more extended use of convict labor, if permitted, would effect a material economy.

TAXATION OF FOREST LANDS

Three laws enacted in 1912 essayed to provide more equitable assessment and taxation of forest lands. While a beginning was made, the details and confusion of these several statutes have discouraged many applicants from entering their lands for classification. In all, eight out of nineteen applications for classification under these laws have been granted. The existing statutes should be perfected and clarified so as better to serve their intent.

PURCHASE OF FOREST LANDS

No appropriation has been made for the purchase of lands within the Forest Preserve since this Commission came into existence. In 1912, and again in 1913, we asked for $25,000, in order that it might be possible to take advantage of offers at prices deemed especially reasonable, but in each instance other demands upon the State's exchequer were held to be more urgent.

We have at this time an unexpended balance of $62,616.89, which sum, being a reappropriation, has been held to pay for

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forest lands which were purchased by our predecessors, subject to the furnishing, by the owners, of an acceptable title. Owing to failure of owners to produce such titles, no lands were purchased during the past fiscal year.

DIVISION OF FISH AND GAME

PROPAGATION OF FISH AND GAME

Fish Culture

The State hatchery stations, nine in number, distributed 1,287,255,120 fish and other aquatic food species during the past fiscal year, a gain over 1912 of 556,820,187. The chief increase was in hatching and planting marine food species, especially edible crab, which increased to 520,000,000 from 100,000,000 the year before. The establishment of auxiliary hatcheries at Montauk and Cold Spring Harbor greatly augmented the yield of the Long Island Station. In all, thirty-nine species of aquatic animals were propagated in 1913, and the actual commercial value of the fish distributed (exclusive of brood stock) was at least $250,000.

New York leads her nearest competitor, among the sister States, at least two to one in fish cultural work.

The new bass hatchery at Ogdensburg was nearly completed at the end of the fiscal year and will be in operation next year. Within the next fiscal year, it is probable that still another hatchery (at Warrensburg) will have been constructed, pursuant to appropriation made for that purpose in 1912.

Stream Pollution

The existing law relative to stream pollution provides that: "No dye-stuffs, coal tar, refuse from a gas house, cheese factory, creamery, condensery or canning factory, sawdust, shavings, tanbark, lime or other deleterious or poisonous substance shall be thrown or allowed to run into any waters, either private or public in quantities injurious to fish life inhabiting the same, or injurious to the propagation of fish therein."

This section is so worded as to impose an undue burden of proof

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upon those who seek its adequate enforcement. It should be amended and made workable.

Manifestly, it is not unreasonable to demand that the young fish so lavishly propagated by the State be placed in an environment where they may thrive and not speedily perish.

With the increase of urban population, the problem of stream pollution grows steadily more complex. The best legislative measures which can be devised, will not be better than the situation justifies.

Furthermore, the State ought to own (not lease) the lands surrounding all hatchery streams; in no other way can the purity of the hatchery waters be safeguarded.

Game Farms

The State game farm at Sherburne produced 25,000 pheasant eggs and 5,000 young birds, during the past year, filling 1,241 applications.

The Legislature of 1913 appropriated $3,000 for maintenance of a game farm in Hurley, Ulster county, on property already owned by the State. Careful investigation having shown this property to be wholly unsuited for such a purpose, the Commission was obliged to abandon the project.

The need for additional game farms has been emphasized by this Commission ever since it came into existence. In 1912 the Legislature made an appropriation for four additional game farms, which, however, failed of executive approval. We again urge that provision be made for additional game farms. As already noted, the direct revenues derived by the State Treasury through this department are over $316,000,—$60,000 more than a year ago. Putting a conservative commercial value on the fish fry and the young birds and eggs which the State is propagating, the total, with the revenues, exceeds by over $200,000 the cost of operating the Division of Fish and Game, salaries included.

PROTECTION OF FISH AND GAME

At the instance of this Commission, the Legislature at its last regular session amended the law relative to the appointment

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of special game protectors, so that a non-competitive examination is prerequisite to their appointment. It is believed that this will effect a substantial reform, and that the work of the special protectors — heretofore, in the main, not satisfactory — will show a decided increase in efficiency. The Commission has recently dispensed with the services of some 150 special protectors who had exhibited but slight interest in the protective work, or fitness therefor.

Until that time comes when each citizen is instinctively a game protector — which can be only when the gospel of conservation has been carried by its apostles to the uttermost parts of the earth — the work of the protective field force must be judged by arrests, convictions, and recoveries. That is to say, while the ideal is no violations, the practice must be sure punishment for violators. Judged by this test, the work of the regular game protectors for the past fiscal year is satisfactory; they handled 2,622 cases in 1913, as against 1,695 in 1912, and 1,485 in 1911. Successful prosecutions were 2,333 in 1913, as against 1,499 in 1912 and 1,321 in 1911.

It is undeniably true that a majority of violators of the laws for the protection of fish and game are not punished; are not arrested, even. When the magnitude of the territory to be covered is considered, the impossibility of adequately protecting a State like New York, with a force of 125 men, is apparent. We therefore respectfully renew the recommendation for an increase of the protective field force.

The game conditions in the State generally are good. This is true as to deer, woodcock, pheasant, grouse, duck, beaver, and in general, encouraging improvement is shown all along the line. This in itself bespeaks good work on the part of the department and its protective force.

The So-Called Buck Law

In the case of the deer there is another factor worthy of consideration. The law which restricts the taking of deer to those having horns not less than three inches in length has now been in operation in this State for two seasons. While strongly sup-

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ported, it has had bitter opponents, who have left no stone unturned to discredit it.

It is a significant fact that the New York State Fish, Game and Forest League, which at its annual convention in 1912 divided almost equally on the so-called buck law, at its convention in 1913 (after another year's trial), sustained this law with practical unanimity, on its merits as a preserver of the species and as a conservator of human life.

This Commission has made most careful and painstaking investigation of all facts (and of wild rumors, even) as to great quantities of slaughtered does alleged to have been left to rot in the woods. They were found to be unfounded or much exaggerated.

Our game protectors were directed to report at once and fully, on all hunting accidents in their territory; and they did so. Probably these statistics were never so carefully, accurately and promptly compiled as this year. These reports show that two men (and only two) were killed through being mistaken for deer this year, out of a total of hunting fatalities, up to the close of the deer season, of 19.

Nineteen is a heavy death-toll, indeed. It may raise a doubt whether any law can guard the public against reckless misuse of death-dealing weapons.

But how oddly they reasoned who said that this showed "the buck law to be a failure."

Out of the thousands killed by railroad accidents, there are some who meet death at crossings where there are gates and a watchman; but we do not say "this proves that the gates are a failure and the watchman no use; let us abolish all gates and watchmen." Out of nineteen killed during the recent hunting season, two were mistaken for deer. That is two more than there ought to have been, but it is less than there would have been, had there been no "stop, look and listen" sign like the so-called buck law.

Perhaps there were does killed and left to rot in the woods. Of course, if it were legal to kill the does, there would not be. It is equally true that if it were legal to help yourself to a bank's funds, no one would ever crack a safe and run away and leave it smashed and useless.

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ADDITIONAL PROTECTION

Of the orders granted by this Commission, for additional protection to fish and game, under Section 152 of the Conservation Law, the most important have had to do with lake trout. Without the concurrence or knowledge of this Commission the final print of the Sanner Bill was so amended, in the Assembly, last winter, as to extend the season for taking lake trout to December 31 — the previous closing date having been September 30. The Commission has entertained petitions and shortened the lake trout season in two groups of counties, taking in the Finger lakes, and the Adirondack lakes. We urge the Legislature to restore a proper season for lake trout throughout the State, and shall submit proposed legislation covering this and certain other details at an early stage of the coming session.

The following additional protection orders are now (December, 1913) in full force and effect, under section 152, and during the periods stated and in the localities named all taking is prohibited as to the species named:

Species	County	Period	Expires
Pheasants	Herkimer	2 years	Oct. 1, 1914
Pheasants	Otsego	2 years	Oct. 1, 1914
Pheasants	Delaware	2 years	Oct. 1, 1914
Pheasants	Chenango	2 years	Oct. 1, 1914
Pheasants	Oneida	2 years	Oct. 1, 1914
Pheasants	Montgomery	2 years	Oct. 1, 1914
Pheasants	Lewis	2 years	Oct. 1, 1914
Pheasants	Madison	2 years	Oct. 1, 1914
Pheasants	Washington	2 years	Oct. 1, 1914
Pheasants	Warren	2 years	Oct. 1, 1914
Pheasants	Schenectady	2 years	Oct. 1, 1914
Pheasants	St. Lawrence	2 years	Oct. 1, 1914
Pheasants	Franklin	2 years	Oct. 1, 1914
Pheasants	Fulton	2 years	Oct. 1, 1914
Pheasants	Jefferson	2 years	Oct. 1, 1914
Pheasants	Clinton	2 years	Oct. 1, 1914
Pheasants	Essex	2 years	Oct. 1, 1914
Pheasants	Allegany	2 years	Oct. 1, 1915
Pheasants	Cattaraugus	2 years	Oct. 1, 1915
Pheasants	Chautauqua	2 years	Oct. 1, 1915
Pheasants	Tioga	2 years	Oct. 1, 1915
Ruffed grouse	Genesee	2 years	Oct. 1, 1914
Cotton tail rabbits	Richmond	Oct. 1 to Nov. 14, and Jan. 1 to Jan. 31	No date

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Species	County	Period	Expires
Black bass	Lake Erie and Niagara River.	June 16 to June 30	No date
Lake trout	Ontario	Oct. 1 to Dec. 31	No date
Lake trout	Yates	Oct. 1 to Dec. 31	No date
Lake trout	Seneca	Oct. 1 to Dec. 31	No date
Lake trout	Steuben	Oct. 1 to Dec. 31	No date
Lake trout	Schuyler	Oct. 1 to Dec. 31	No date
Lake trout	Madison	Oct. 1 to Dec. 31	No date
Lake trout	Oswego	Oct. 1 to Dec. 31	No date
Lake trout	Tompkins	Oct. 1 to Dec. 31	No date
Lake trout	Onondaga	Oct. 1 to Dec. 31	No date
Lake trout	Cayuga	Oct. 1 to Dec. 31	No date
Lake trout	Livingston	Oct. 1 to Dec. 31	No date
Lake trout	Oneida	Oct. 1 to Dec. 31	No date
Lake trout and whitefish	Clinton	Nov. 6 to Dec. 31	Nov. 5, 1915
Lake trout and whitefish	Essex	Nov. 6 to Dec. 31	Nov. 5, 1915
Lake trout and whitefish	Franklin	Nov. 6 to Dec. 31	Nov. 5, 1915
Lake trout and whitefish	Fulton	Nov. 6 to Dec. 31	Nov. 5, 1915
Lake trout and whitefish	Hamilton	Nov. 6 to Dec. 31	Nov. 5, 1915
Lake trout and whitefish	Herkimer	Nov. 6 to Dec. 31	Nov. 5, 1915
Lake trout and whitefish	Lewis	Nov. 6 to Dec. 31	Nov. 5, 1915
Lake trout and whitefish	Saratoga	Nov. 6 to Dec. 31	Nov, 5, 1915
Lake trout and whitefish	St. Lawrence	Nov. 6 to Dec. 31	Nov. 5, 1915
Lake trout and whitefish	Warren	Nov. 6 to Dec. 31	Nov. 5, 1915
*Lake trout and whitefish	Washington	Nov. 6 to Dec. 31	Nov. 5, 1915
Pike and pikeperch	Butterfield Lake, Jefferson Co.	Tip-ups prohibited	Jan. 1, 1917

MIGRATORY BIRD LAW

The Congress of the United States having enacted the so-called Weeks-McLean Law for the protection of migratory birds, this important measure became law (with the approval of the President) on March 4, 1913.

This Commission co-operated actively and heartily with bird lovers and conservationists generally in the movement which culminated in the enactment of the Weeks-McLean Law. It was not disputed that the State of New York had excellent laws for the protection of bird life, but the difficulty was that certain other States needed to be brought up to the mark of better protection for the migratory birds; and this it seemed most practicable to bring about through the enactment of a general Federal statute.

The Federal regulations for the protection of migratory birds

* For Lake George seasons, see section 241-a, Conservation Law.

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did not become effective, nor were they promulgated in their final form, until approved by the President on October 1st last. It then became apparent that in important particulars, as to certain species, there was a conflict of seasons between the State Conservation Law and the Federal regulations. In order to be able to advise its game protectors, this Commission thereupon asked the Attorney-General of the State for his opinion which law would govern, where a conflict existed; whereupon the Attorney-General gave an opinion that the Federal law is unconstitutional.

In the situation thus created, this Commission, in the pursuance of clear and unavoidable administrative duty, caused much regretted disturbance to certain of its friends; but the whole matter can be easily adjusted, through the simple process of making the two laws, State and Federal, conformable the one to the other in the comparatively few points where they differ.

We recommend that this course be followed.

UNIFORMITY ESTABLISHED

It may now be regarded, we hope, as a settled legislative policy, that uniformity should characterize the laws for protection of fish and game. We believe that sportsmen, hunters, anglers, and the public generally, have appreciated thoroughly the working out of this principle, as contrasted with the old regime of many conflicting and confusing local laws, loosely codified into a general statute.

In such amendments as we expect to submit this year, the perfecting of the statute, the making of its verbiage clearer and more perspicuous will be our purpose. Nothing of grave moment, nothing interfering with the idea of uniformity, is contemplated.

We believe that a guides' license system ought to be put into effect in this State, and that, properly worked out, it would help materially in our protective work.

We believe that farm owners ought to be better protected, by law, against lawless hunters who destroy crops and cattle; and furthermore we believe that hunters generally would profit in every way by legislation to suppress such lawless outrages.

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BUREAU OF MARINE FISHERIES

The receipts of the Bureau of Marine Fisheries for the fiscal year ending September 30, 1913, were slightly in excess of those of the previous year, and are as well the largest in its history; the total being $26,966.24.

This result has been obtained in spite of the fact that the revenue derived from leases of more than twenty-six hundred acres of oyster lands located in Jamaica Bay has been cut off by the statute ceding control of those waters to the City of New York for harbor purposes.

The acreage of shellfish lands leased during the past year has been approximately five times as great as that disposed of in the previous year; and there are now pending in the Bureau of Marine Fisheries, to be disposed of at an early date, applications for oyster lands nearly equal in acreage to the entire amount disposed of during 1913.

With the granting of the leases the State's holdings of shellfish lands in protected bays will be substantially exhausted, and the expansion of the oyster industry in New York waters will require giving attention to the large acreage in Long Island Sound, and the adoption of a very liberal policy in order to induce planters to take up and cultivate these lands.

Possibilities for Oyster Culture

It is estimated that under the waters of Long Island Sound proper, there are about 175,000 acres offering various possibilities for oyster culture. It is claimed by planters that these lands cannot be profitably cultivated if they are obliged to pay to the State $2 per acre annual rent, the rate at which all State oyster bottoms are now being leased. It is, therefore, probable that during the present year there will be inaugurated a policy which will permit and encourage planters in taking up their lands at a reduced rental for the purpose of experimentation, and upon short term leases, with the privilege of assigning the same to the State if after a reasonable opportunity, profitable cultivation is shown to be impossible. It is confidently expected that this policy will result in a very substantial increase in the revenues of

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this bureau, since we are assured by a number of planters that they will lease lands under the conditions above referred to. In addition, such a policy would tend to the expansion of the oyster industry, and to a substantial increase in the output of a highly valuable and palatable article of food, as well as the employment of increased capital and labor.

Sanitary Inspection

During the present year there were enacted amendments to the existing law providing for sanitary inspection of shellfish grounds, and the issuance by the Commission, in proper cases, of a certificate of sanitary condition of the lands and their product. The passage of such an act had been urged upon previous legislatures, but without success. While the statute itself is satisfactory in form, it has been impossible of enforcement because no appropriation was made for the purpose of carrying into effect its provisions. It is a law of the highest importance, affecting public health. The ultimate cost of enforcement falls upon the oyster industry by reason of a tax of twenty-five cents per acre for sanitary inspection. The initial expense must, of course, be borne by the State, by appropriation, and it is imperative that this important matter should not be slighted or overlooked. As matters now stand, this Commission is placed in the position of being charged with the enforcement of a law but without the instrumentality through which alone its enforcement is possible. The State Health Department has cheerfully aided us in this work as far as its funds and facilities would permit.

An Archaic System

Frequent confusion and misunderstanding relative to the enforcement of laws for the protection of oyster beds have arisen by reason of the fact that certain towns in Long Island have by legislative enactment been given the right to grant leases under water within town limits.

A series of enactments passed between 1866 and 1910 deprived the State of the right to regulate the oyster growing industry or to control the execution of oyster leases in particular localities.

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These statutes have given rise to a condition of conflicting jurisdiction which has in many cases nullified remedies and made impossible the enforcement of protective measures. Town control of oyster properties is as archaic as was the old system of county game protection. It is doubtful if any one could be found who would to-day advocate a return to the old system under which boards of supervisors were given the power to enact and enforce game laws in their respective counties.

Practically every Atlantic and Gulf State has abolished local regulation and has concentrated control of its oyster lands in the hands of the State. We, therefore, earnestly recommend that this matter should be given careful attention to the end that the various special acts ceding to the towns and counties of Long Island, the control of oyster properties within their limits may be repealed, and the regulation of the oyster industry restored to the State.

DIVISION OF INLAND WATERS

The Legislature at its last regular session amended the Conservation Law by adding thereto a new article, to be known as article 9-a, to provide for union water districts and conservation waterworks. This act (chapter 233, Laws of 1913) provides that any number of municipalities within contiguous counties may join in the formation of a union water district, and that three or more such municipalities may meet and confer for that purpose. It embodies a complete code of procedure for the formation of such union water districts. The importance — present and future alike — of such legislative machinery is apparent. Manifestly, municipalities contiguous and closely interrelated may by uniting derive their water supply from some common source, much more cheaply and satisfactorily than would be possible were they to act separately or discordantly.

UNION WATER DISTRICT PROJECTS

Meantime progress has been made in the surveys and preliminary plans for the Orleans project, which contemplates the supplying of water to sixty municipalities in the counties of Erie,

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Niagara, Orleans, Genesee and Monroe. It is demonstrated that the Orleans water supply project presents a most desirable opportunity of eliminating the hand-to-mouth water supply conditions of that region and substituting a supply adequate alike in quantity and in quality.

Complete surveys have been made for the so-called Charlton project, to supply water to Cohoes, Watervliet, Green Island and Waterford; these municipalities having already formed a union water district under chapter 233, Laws of 1913.

POWER DEVELOPMENT ON NAVIGABLE STREAMS

The decision of the United States Supreme Court in the Chandler-Dunbar case goes far toward clarifying the relations of the public toward power development on navigable streams. We recommend the enactment of a law patterned after chapter 264, 35 statutes, pages 815–820, of the Laws of the United States, and providing that powers created or made possible by the construction of the Barge canal shall not be disposed of in any way without the concurrence of this Commission after public notice and hearing.

The Commission has continued the surveying of streams in order to ascertain the amount of developed and undeveloped water powers, storage possibilities, etc. A survey of the Saranac river has been made and will be prepared for publication during the coming year. The results of the Oswegatchie power survey, made in the summer of 1912, will appear in the complete report of this division for the present year.

DRAINAGE PROJECTS

It is desirable that the drainage of the 100,000 acres of swamp land in the State should go forward with the least possible delay; and the highest court of the State having now decided litigation, under the river improvement act, in a manner favorable to the workability of drainage projects, this Commission proposes to push this feature of its work with as great energy as funds will permit.

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CANASERAGA CREEK IMPROVEMENT

It is the intention to complete construction work on this important improvement during 1914.

The work as designed requires thirty-four miles of improved and new channels, provided approximately as follows:

	Mile
Canaseraga creek	15
Keshequa creek	2
State ditch	5½
Bradner creek	7¾
West Mud run	2
East Mud run	1¾

A number of new highway and farm bridges, and other incidental work, are included in the improvement.

The greatest flood in the history of the Canaseraga valley occurred in the early spring of 1913. The Genesee river at its junction with the Canaseraga creek rose to the highest elevation on record, or possibly seven inches higher than ever formerly recorded. The elevation of the flood at said junction was 568.6 above tide, U. S. G. S. datum. This high flood caused back water as far south or up stream as Groveland. From a point about one mile north of Cumminsville the valley generally was overflowed for a short time all the way down stream to near Groveland, there meeting the back water effects from the Genesee river.

South of Cumminsville and entirely outside of the Canaseraga Creek Improvement District, the Canaseraga creek burst its natural bounds and artificial banks, and the flood waters caused considerable damage at Cumminsville and in the valley up stream therefrom for a distance of about one mile to the southward. The town of Groveland appropriated a sum sufficient, and from the proceeds has constructed dikes, pile, timber and brush protection, and excavated some enlargement to the natural channel, and seemingly completed the same in a good and workmanlike manner. It is believed that this protection will prevent further flood damage at and south of Cumminsville for many years to come.

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Decided Benefits

The enlarged improved channels of Canaseraga creek and the other channels have, so far as completed (October 1, 1913), resulted in decided benefits to the inhabitants of the improvement district, and greatly reduced the degree of damages which have heretofore occurred from flood conditions. It is apparent that in lessening the menace to public health and safety, or possibly wholly eliminating the same, and in incidental ways, the work will be of great benefit to the improvement district.

The proceeds of the sale of $200,000 of bonds for this improvement district work, plus premium, accrued interest and interest earned on bank balances, amounted on October 1, 1913, to $223,450.70, from which $134,859.07 has been expended, leaving a cash balance October 1, 1913, of $88,591.63. Previous to the sale of the bonds there had been expended for the purposes of improvement from the proceeds of a number of appropriations made by the State, and in addition to the sums set forth above, $9,518.85, all or a large part of which under the provisions of statute law is to be refunded by the improvement district to the State treasury.

SUPERVISION OVER DAMS

Under the provisions of section 22 of the Conservation Law jurisdiction over dams, including structures for impounding water, is vested in the Conservation Commission.

Plans and specifications for fifty-four dams have been approved by the Commission during the fiscal year. Of these, eighteen were new or original construction, and thirty-six to replace dams which were so far decayed, disintegrated, etc., as to be unsafe. Among such new dams are a number of large and important structures in the Hudson, Oswegatchie, Saranac, Salmon, Raquette, Black and other rivers.

Before the construction of any new dam is started, the site and foundation thereof are carefully examined, and other inspections are made from time to time during construction. Sixty-eight dams inspected have been ordered strengthened or improved. Seventeen dams have failed or gone out during the year, none of which were large or important structures, and nearly all of which

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were so small, or impounded so small a quantity of water, that their going out did not cause any serious damage.

Fewer Dam Failures

The lessening in the number of dam failures compared with previous years, is very noticeable, particularly as to large and important structures, and is due mostly, if not wholly, to careful supervision under the Conservation Law. It is a result the more noteworthy in view of the flood conditions of the past year.

No dams built under plans and specifications approved by the Commission have failed. Supervision by the Commission has not only protected human beings and property from floods caused by the failure of dams, but has proved of great advantage to the owners of dams. The loss to owners and the cost of reconstructing dams which have failed by reason of improper designs or defective construction, which has amounted to large sums in the past, is believed now to be almost eliminated as a result of this supervision.

WATER SUPPLY APPLICATIONS

The work of the Commission during the past year in the equitable apportionment of the water supply resources of the State among the inhabitants thereof is briefly indicated by the following table:

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No.	Name	Application filed	Application approved	Permit to operate
103	Manhasset Lakeville Water District	.....	.....	Aug. 1, 1913
106	Village of Albion	.....	Dec. 3, 1912	.....
107	East Williston Water District	.....	.....	Dec. 31, 1912
108	Village of Middleport	.....	.....	May 19, 1913
110	New York City-Schoharie Sources	.....	*April 23, 1913	.....
113	Hartsdale Water District	.....	.....	Dec. 31, 1912
114	Village of Wolcott	.....	.....	Feb. 14, 1913
115	Spring Valley Water Works & Supply Company	.....	.....	May 19, 1913
116	Village of Mt. Morris	.....	Dec. 7, 1912	.....
118	Village of Fayetteville	.....	.....	July 29, 1913
122	Sodus Water District (supplemental application)	Jan. 23, 1913	Feb. 24, 1913	.....
123	Village of La Salle	.....	.....	Jan. 27, 1913
125	Village of Brockport	.....	Dec. 7, 1912	.....
125	Village of Brockport (first supplemental application)	Dec. 26, 1912	March 25, 1913	.....
125	Village of Brockport (second supplemental application)	April 3, 1913	*April 8, 1913	.....
126	Locke Water District No. 1	.....	.....	Aug. 1, 1913
126	Locke Water District No. 1 (supplemental application)	Oct. 24, 1912	Nov. 8, 1912	Aug. 1, 1913
127	Madrid Water District	.....	Pending	.....
128	Albion Water Works Company	.....	April 21, 1913	.....
129	North End Water District, Town of Scarsdale	.....	Nov. 15, 1912	Aug. 1, 1913
130	New Castle Water Company	.....	June 10, 1913	.....
131	Village of West Winfield	Oct. 24, 1912	Dec. 30, 1912	.....
132	Upper Jay Water District	Dec. 2, 1912	Dec. 30, 1912	.....
133	City of Geneva	March 7, 1913	June 10, 1913	.....
134	Village of Honeoye Falls	Dec. 19, 1912	Feb. 24, 1913	.....
135	Village of Mexico	Jan. 9, 1913	April 7, 1913	.....
136	Marion Water District	March 31, 1913	June 10, 1913	.....

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136	Marion Water District (supplemental application)	Aug.	1, 1913	Sept.	10, 1913	.....
137	Wellsville Water Company	April	4, 1913	July	8, 1913	.....
138	Greenwich Union Water Company	April	23, 1913	Sept.	10, 1913	.....
139	Village of Madison	May	7, 1913	June	30, 1913	.....
140	City of Plattsburgh	May	13, 1913	July	8, 1913	.....
141	Village of Frankfort	June	3, 1913	Sept.	10, 1913	.....
142	Village of Bloomingdale	June	24, 1913	Pending	.....	.....
143	Village of Clinton	June	24, 1913	Sept.	10, 1913	.....
144	City of Yonkers	July	11, 1913	Pending	.....	.....
145	Waterloo Water Company	July	29, 1913	Sept.	19, 1913	.....
146	City of Fulton	July	15, 1913	Sept.	19, 1913	.....
147	Village of Lisle	Sept.	23, 1913	Pending	.....	.....

* Rejected.

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Supervision of Water Supply Needed

Complaints in large number have been received with regard to service rendered and quality of water supplied by water supply corporations, and rates charged therefor. Many cases are alleged where water is being supplied for domestic consumption which is so impure as to be entirely unfit. This State should follow the example of other States, by exercising supervision over all such matters to the extent that other public service corporations are regulated. State authorities should be able to forbid the supplying of contaminated water to any public distribution system in order to protect the health of the community.

All sewerage and drainage projects, plans for which must receive the approval of any State Commission or department, must also be approved by this Commission. During the past year ninety-nine such applications have come before this Commission for action, all of which we approved.

HYDROGRAPHIC INVESTIGATIONS

During the fiscal year the making of measurements of rainfall and stream flow and the recording thereof has been continued in cooperation with the United States Geological Survey.

The work has been somewhat extended and some new stations added, and the service generally somewhat improved, while the cost has remained the same, namely, $10,000 per annum.

These records are more and more useful as time goes on by reason of the greater period of time covered thereby, due to which more minimum and maximum rainfall and stream flow conditions are covered and averages obtained over longer periods of time.

The importance of the records to those interested in hydraulic and hydro-electric subjects is yearly increasing, and the usefulness of the work fully warrants its very moderate cost.

LEGAL BUREAU

The work of this bureau consists of the examination and preparation of all cases for violations of the Conservation Law in relation to fish, game, lands and forests, and actions in ejectment to recover the possession of property owned by the

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State, including the examination of titles. A summary of the cases thus examined and referred to the Attorney-General for prosecution is appended to this report. The counsel to the Commission also advises the heads of all divisions of the Conservation Commission and during the year has rendered a large number of opinions. The office of assistant counsel has been abolished.

In addition to the actions prosecuted through the Attorney-General, this Commission has been carrying on important litigation to uphold the power of the Commission in relation to the improvement of water courses for the benefit both of health and property. A proceeding for the improvement of the Canaseraga creek instituted by the predecessor of this Commission, the State Water Supply Commission, under chapter 734 of the Laws of 1904, was attacked by certain property owners, claiming that the improvement scheme contemplated not simply and solely the regulation of the flow of Canaseraga creek and intersecting water courses, but also involved the drainage of adjacent lands. In a decision rendered by the Court of Appeals in this case on October 21, 1913, the power of the Commission to prosecute such an improvement was upheld.

In disposing of the objections made by property owners the Court of Appeals points out that the language of the statute plainly contemplates not merely the regulation of the flow of the principal stream, but also such incidental work as may tend to aid in regulating the flow of water so as best to promote the purposes of the improvement, to wit, the safety and health of the public, and that a river improvement scheme is not invalidated because incidentally it involves the drainage of adjacent territory.

All of which is respectfully submitted.

GEORGE E. VAN KENNEN,
JAMES W. FLEMING,
JOHN D. MOORE,
Conservation Commissioners.

ALBANY, N. Y., *January* 15, 1914.

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MEMORANDUM BY COMMISSIONER FLEMING

I am in hearty accord with the general policy of conserving and utilizing the water powers of the State; but I do not agree with my associates upon the plan of utilization and the places at which the policy shall be initiated. It is proposed to inaugurate the policy of generating electric current by the State, by means of the construction of power plants at Crescent and Vischer Ferry on the Mohawk river operated by the surplus waters of that river, and its distribution to the municipalities in what is known as the Capital district. At these points and for many miles to the west of them, the enlarged Erie Canal will be in the Mohawk river which is to be canalized. It is conceded by all, that during certain portions of the year, there will be no surplus waters which could be used for power plants. It is admitted by those who favor the proposition, that because of the recognized deficiency of water, auxiliary steam plants must be constructed and kept ready for use to generate and transmit the electric current. How long such auxiliaries must be operated is, of course, uncertain. It all depends on whether there is water in the canal over and above what is necessary for the navigation of the canals. The future alone can demonstrate whether there will be surplus waters sufficient in quantity and for sufficient length of time to make it worth while for the State to embark upon an expenditure of hundreds of thousands of dollars in the erection of power plants. Time and experience are the best instructors. It is well enough to talk about engineers' estimates, but every intelligent man knows that such estimates are liable to be faulty. Many of the most sincere and earnest advocates of the canal system believe that the installation of such plants on the theory of surplus waters in the canal, would impair the navigation of the canal or at least would be a mistake, and possibly a very costly one, until the canal is completed and in actual operation, so that its necessities will be known and the extent of the surplus waters be ascertained. It seems to me that their view is worthy of the highest consideration. It substitutes fact and experience for "estimates." The people have voted to expend nearly one hundred and thirty millinos of dollars for the enlargement of canals and the establish-

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ment of State terminals and the primary purpose was to afford additional facilities for commerce and stimulate and increase the industrial and commercial activities of the people. The canal referendum act of 1903, through which the people gave their consent to canal enlargement, contains this provision:

> "The supply of water for the Erie Canal shall be sufficient for the uses of the canal with at least ten million tons of freight carried on it per year."

This figure is largely in excess of the tonnage carried on all the canals of the State in their palmiest days. The new canal will greatly exceed in width and depth the existing canal. The major portion of it will be in canalized lakes and rivers. The river portion of the Mohawk will be 200 feet in width and 12 feet in depth as against the old canal with a depth of 7 feet and about 70 feet in width. The new locks will be three times the length of the old ones. To carry the tonnage specified in the statute and to permit of the lockage of boats, vastly greater volumes of water will be needed. The State has provided only two additional reservoirs to meet this demand in the eastern division. Any one who will look at the Cohoes falls and the Mohawk river during the dry season of the year and particularly in the drought years, will be justified in entertaining very serious doubts whether there will be any surplus waters in the Erie canal at the time of year when the greatest demands for navigation will be made upon that canal. If such should prove to be the case, it means that the auxiliary steam plant will be a very large, if not the principal factor in creating and distributing the electric current. I have yet to learn that the State can operate steam plants commercially with any special advantage to itself or to its citizens. The theory of the development of power at the points named and its transfer to the neighboring municipalities is that it will afford to the people light, heat and power at less cost than they are now paying. Such popular support as the proposition receives is based on this expectation. Whether this would be the result under the conditions to which I have referred, is uncertain and problematical.

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It would seem to be the part of prudence, therefore, to postpone embarking upon this enterprise until we can be better instructed by facts and experience concerning the waters available at these two points. Once the State gets into the thing, it would be almost impossible to withdraw and appropriations either from the State or from the localities affected will pile one upon another to operate the plants.

It must not be inferred from the foregoing that I am opposed to the State inaugurating and enforcing a policy for the conservation and use of the water powers which are now going to waste. The best method for doing this is, however, a serious question upon the part of intelligent persons, but the folly of the past cannot be corrected by the commission of a new blunder.

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ADDENDA

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CONSERVATION DEPARTMENT

Summary of Receipts and Disbursement from Various Sources, Exclusive of Regular Accounts with the State Comptroller for the Fiscal Year Ending September 30 1913.

Receipts from fines and penalties	$39,666 24
Breeders' licenses	285 00
Net licenses	15,014 56
Hunting licenses, residents	157,690 00
Hunting licenses, non-resident	3,020 00
Hunting licenses, non-resident tax	780 00
Rentals from shellfish lands	29,087 59
Importation of foreign game	11,166 10
Tagging trout	9,657 64
Shipping permits out of State	102 00
Shipping permits into State	282 60
Trespass on State lands	30,407 21
Sale of trees	10,959 60
Fire rebate	4,413 11
Fire fines	811 68
Miscellaneous receipts	2,588 14
Refund on payrolls	68 86
Top lopping fines	407 54
Total receipts	$316,407 87

Disbursements

By cost of collecting, refunds, etc.	$271 64	
By checks to State Treasurer	316,136 23	
		$316,407 87

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CONSERVATION DEPARTMENT

STATEMENT OF EXPENDITURES FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1913.

For official salaries, Commissioners and deputies, secretaries, chief engineer, counsel, confidential agents, etc.	$99,311 81
For salaries of graded employees, auditor, stenographers and clerks	9,660 00
For salaries of additional employees, Bureau of Publication, etc	2,899 97
For traveling expenses and disbursements of Commissioners and deputies, counsel, secretaries, officials, inspectors, experts and other employees.	11,363 77
For office expenses, rent, repairs, furniture, fuel, light, books, blanks, printing, postage, transportation, etc.	27,317 97
For temporary services, stenographers, etc	751 40
Bureau of Publication — expenses	18 25
	$151,323 17

DIVISION OF FISH AND GAME

For salaries of chief protector, assistant chief, twelve division chief protectors, five marine fisheries protectors and 105 protectors	$122,911 38
For traveling expenses and disbursements of protectors and special protectors	74,346 48
For payment of moieties to complainants, justices, constables, attorneys and court costs	15,232 08
For printing game laws	5,154 79
For maintenance and hire of steamboats and launches patrolling State waters	2,550 05
For tags and tagging machines	534 31
For printing and advertising regulations	523 33
	$221,252 42

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Hunters' License Bureau

For salary of license clerk	$1,500 00
For printing hunters' licenses	2,200 00
For postage, transportation of packages and expenses of license bureau	4,112 38
For fees paid to county clerks	2,837 81
	$10,650 19

Marine Fisheries Bureau

For salaries of supervisor, deputy, clerks and protectors	$13,689 64
For rent of office, postage, stationery, printing and office expenses	7,122 17
	$20,811 81

Propagation and Distribution of Fish and Game

For maintenance of fish hatcheries and collection and distribution of fish and fry	$60,043 45
Construction of new hatchery, St. Lawrence county.	17,963 73
New hatchery, Warren county	301 42
Salary of fish culturist	4,000 00
Salaries of nine hatchery foremen	9,495 00
Salary and expenses of game bird farm	8,424 72
	$100,228 32

DIVISION OF INLAND WATERS

Salaries of engineers and employees	$16,753 87
Hydrographic investigations, expenses	11,858 67
Appraisal and sale of surplus water expenses	4,467 38
Surveys, investigations and river improvement expenses	19,295 15
Investigating drainage improvement	159 31
Investigation river structures	1,996 89
Salaries of two gate tenders	1,100 00
Cuba reservoir expenses	1,002 77
	$56,634 04

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DIVISION OF LANDS AND FORESTS

Forest preserve land purchase, expenses	$192 89
Forestry bureau expenses	18 36
Maintenance and equipment of fire patrol	97,705 15
Surveying and protecting State's title to land	3,454 38
Rebates to towns	476 67
Reforesting denuded lands	42,231 79
St. Lawrence reservation, maintenance	17 93
John Broen homestead repairs	19 98
New map of Catskills	15 00
Salaries of Superintendent, deputy, foresters, district rangers and fire inspectors	39,011 99
Reimbursing Jay Hand, trespass case	60 00
	$183,204 14
Total expenditures	$744,104 09

CANASERAGA CREEK IMPROVEMENT FUND

Balance in National Commercial Bank, Albany, N. Y., October 1, 1912	$145,267 43
Interest on deposits and refunds to October 1, 1913	3,947 48
	$149,214 91

Disbursements

Paid D. C. Stephens, contractor on construction	$41,446 72	
Paid Manhattan Co., interest on bonds	10,000 00	
Services and expenses of engineers, attorneys and miscellaneous accounts	9,176 56	
Total		60,623 28
Balance in National Commercial Bank, October 1, 1913		$88,591 63

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REPORT OF CONSERVATION BUREAU, ATTORNEY-GENERAL'S OFFICE, RELATIVE TO LITIGATIONS

As provided by the Conservation Law, the Conservation Commission transmitted to the Attorney-General all orders to bring actions, suits and proceedings which the Commission was authorized to institute and maintain.

At the date of the last annual report, there were pending eighty-two actions. Many of these actions had been transferred to the Attorney-General from the Legal Department of the Forest, Fish and Game Commission.

During the year 1913, twenty-four actions in ejectment involving title to lands in Township 15, Totten and Crossfield's Purchase, Hamilton County, were tried before Honorable Irving G. Vann, official referee. These actions have been pending for many years and the State has finally established its title to a large quantity of land within this township which had heretofore been considered questionable.

Two actions brought against the New York Central and Hudson River Railroad Company for damage to lands caused by fires alleged to have been set by the railroad company's engines were successfully prosecuted in Herkimer and Franklin Counties and verdicts recovered aggregating $23,000. The verdict in the action in the Herkimer County fire case has been affirmed in the Appellate Division and is now pending in the Court of Appeals. The verdict in the Franklin County action has not been disturbed, argument having been had on the appeal from the judgment in the Appellate Division.

There have been disposed of by action since January 1, 1913, the following cases:

Trespass	15
Fish and game	31
Fire	4
Ejectment	29
Conversion	1
Assault	1
Undertaking on appeal from judgment	1

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Of the cases pending and started during 1913, there are still pending:

Trespass	13
Fish and game	28
Fire	4
Ejectment	40
Set aside judgment	1
False arrest	1

Of the ninety-four orders to prosecute on hand January 1, 1913, action has been taken as follows:

Cancelled		58
Closed before commencing action		15
Action started		11
pending	6	
closed	5	
Orders held awaiting data, etc		10

Of the ninety-three orders received since January 1, 1913, action has been taken as follows:

Action commenced			55
Closed		*Pending*	
Fish and game	12	Fish and game	16
Trespass	9	Trespass	11
Title	1	Ejectment	1
Fire	2	Fire	2
False arrest	1		30
	25		

Orders closed before action was started:

Fish and game	10	
Trespass	3	
Ejectment	1	
		14
Held awaiting data, etc		24

There has been collected for penalties and costs by the Attorney-General and remitted to the Commission the sum of $30,743.69 during the year 1913.

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ANNUAL REPORT

OF THE

DIVISION OF LANDS AND FORESTS

(FORESTRY BUREAU)

[55]

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Courtesy Department of Education.

STATE NURSERY AT SARATOGA.

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REPORT OF THE FORESTRY BUREAU

Hon. CHARLES H. JACKSON, *Deputy Commissioner, Division of Lands and Forests, Conservation Commission, Albany, N. Y.:*

SIR.—I respectfully submit the following report relative to the affairs of this bureau for the year 1913.

The subjects to be considered are forest preserve, forest fire protection, forest products, reforesting, and State forest problems.

FOREST PRESERVE

The main duties in connection with this vast area consist in protecting it from trespass and fire. On account not only of its large area but the fact that it is bounded by and has intermixed with it private holdings of large and small areas, it is necessary to exercise the greatest diligence over an extended area in order to properly protect the Preserve from trespass. The same fact links the matter of state fire protection with that of the private owners. The various phases of the work will be separately considered.

TRESPASS

The decrease in the number of trespasses has been very gratifying; only sixteen cases have been reported, and the total value of material is $2,008.25. There was probably not more than one case of deliberate theft. In this instance the trespasser was quickly detected and only $14.93 worth of material cut. Ten of the sixteen cases occurred on land in which private owners dispute the State's title. The largest trespass was caused by an erroneous survey. A man who owned a lot adjacent to State land, desiring to lumber his lot, employed a surveyor to locate his lands before the lumbering operations were commenced. This surveyor located a State lot rather than the private property. The contractor commenced cutting on State land but was soon detected. The value of the material cut was $1,683.86. We promptly made

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a survey, determined the correct boundaries and stopped the operation before any timber was removed. The operators, not having removed any of the logs cut, suffered a large loss on account of the money which they had paid for cutting the timber and the fine of $3,000. If an exception is made of the last named trespass, together with those in which the State's title is questioned, the damage is practically nil. This report is very creditable in face of returns of a few years ago when the computed value of the material was from $20,000 to $40,000 per annum.

OPEN CAMPS

The Forest Preserve, at the present time, is a great playground for the people. It has been the policy of this Commission to encourage its use for such purposes, but building of structures has been prohibited, only tents with board floors being permitted. A large number of people go into the woods for seclusion, quietude and to get away from the ordinary lines of travel, and it has not always been convenient or possible for them to pack tents which they might require for camping purposes. The cost of packing such outfits is expensive and tends to restrict the legitimate use of the forest area. Application was made to this Commission for permission to erect upon State land in the Forest Preserve *open camps* under such rules, regulations and restrictions as the Commission might impose. The matter deserved careful consideration, and received it. It was determined that such camps would tend to increase the usefulness of the Preserve, and that such places would also be useful for men who might be needed to fight forest fires. An *open camp* is one in which but three sides are enclosed, therefore, it cannot be locked, or other steps taken which would lead to exclusion. Believing that the interests of the people would be better served by having a reasonable number of such buildings erected in proper places suitably distributed, the Commission formulated and adopted the following rules in regard to open camps:

Resolved, That the following rules and regulations be and the same hereby are adopted in relation to the construction and use of trails and open camps upon State land:

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"Open Camp."
Built by Adirondack Camp and Trail Club.

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1. No person, association or corporation shall build any trail or open camp upon State land without first obtaining written permission from the Conservation Commission.

2. The location of such trails and open camps shall be fixed by the Commission.

3. Application for permission to construct such open camps shall state the source of supply and the character of the material to be used, and no such camp shall be constructed until the character of the material and the source of the supply thereof shall be approved by the Commission.

4. All such camps shall contain a conspicuous sign reading as follows:

THIS CAMP IS THE PROPERTY OF THE STATE OF NEW YORK AND IS OPEN TO THE PUBLIC

Such sign shall be maintained at such camps by the person, association or corporation constructing the camp.

5. A suitable fire-place shall be constructed and maintained in front of such camp, the form and material thereof to be approved by the Commission.

6. No such camp shall be occupied by the same person or persons more than ten days in any year, nor more than three nights in succession. This rule shall not apply to State employees while engaged in fighting fires. A copy of this rule shall be posted and maintained in a conspicuous place at such camp.

7. The Commission may remove or discontinue the use of any such camps at any time.

8. No building, camp or structure shall be erected on State land except as above provided.

CLASSIFICATION

The State of New York is the largest individual land owner in the Adirondacks. It is assessed and is paying taxes on the major portion of its property. The assessment of such lands is made by the local assessors and the State has almost no voice in the valuation which is put upon these properties. The statute requires that the Comptroller shall approve the assessment-roll, but, on the other hand, he has no information as to the character of the growth or the value of the property which is assessed. Other land owners, large or small, have examined their properties, know the

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character of the growth and the value at which it should be assessed. It is, indeed, time that a systematic examination of the State's property be made. The saving that would be made in taxes would more than pay for the expense of such examination.

The question of the character of the timber upon the land which the State owns, where it is located, and other facts in this connection will be of primary importance in determining any question of the management of the property. In another part of this report the question of revenue to the State from this area will be discussed.

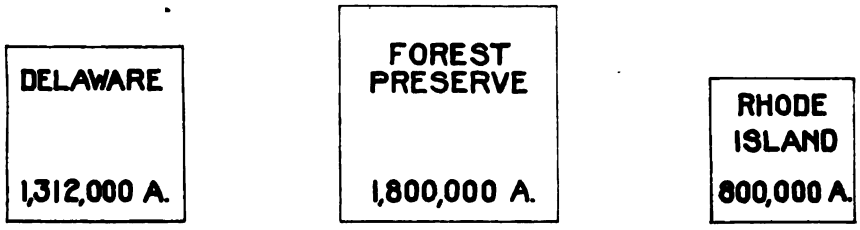
A systematic examination of these lands by competent foresters should be made. Valuation surveys, by measuring all the growth upon a certain percentage thereof, ought to be undertaken at once. There would then be reliable data available for necessary purposes.

The definition of the Forest Preserve provides that lands acquired by the State under foreclosure of loan commission mortgages shall become a part of the preserve, if situated in Forest Preserve counties and if they were *wild at the time of the foreclosure of the mortgage.* An examination of nearly all of these lands has been made the past year, in order that a determination could be made as to whether or not they constitute a part of the Forest Preserve. It has been found that there are lands so acquired by the State within the Adirondack and Catskill Parks which are not, under the definition, a part of the Forest Preserve. A statute should be enacted providing that all lands acquired by the State under such proceedings within the Adirondack and Catskill Parks would automatically become a part of the Preserve.

A new list of lands owned by the State in the Forest Preserve counties has been prepared and is submitted as an appendix to this report. The previous list was compiled in 1909 and it has been found to be erroneous in many instances. In this publication the lands constituting the Forest Preserve have been separately listed, while other lands are included in the appendix of that volume. This classification will materially change the total area of the Preserve. The reasons for these changes will be found in the introduction to the list of lands.

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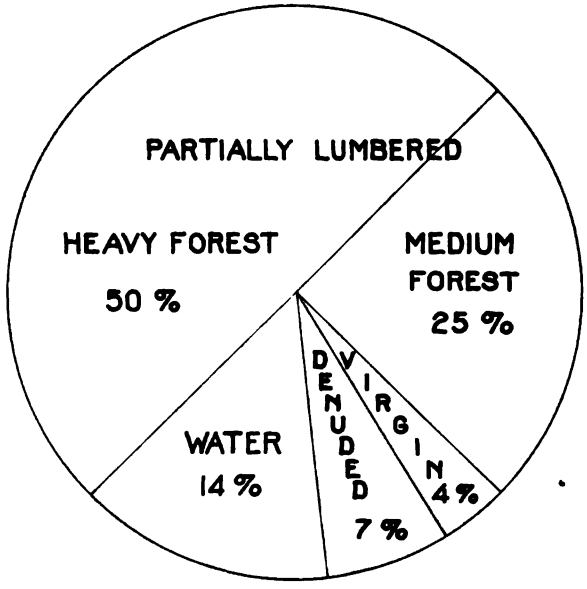
STATE LANDS



AREA OF NEW YORK STATE FOREST PRESERVE
COMPARED TO THE STATES OF DELAWARE AND RHODE ISLAND

STATE OWNERSHIP 14 BILLION FEET	PRIVATE OWNERSHIP 24 BILLION FEET

STANDING TIMBER IN ENTIRE STATE



CHARACTER
OF THE
FOREST PRESERVE

DIV. OF LANDS & FORESTS
CONSERVATION COMMISSION
STATE OF NEW YORK
1914

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BOUNDARIES

The most difficult task in connection with the administration of State lands is the location of the boundaries. It is a well established principle that the lines as located by original surveys must govern. The major portion of such original surveys were made a century or more ago and, in the interval, through fire and lumbering, many of the monuments made by the original surveyors have been destroyed. It is, therefore, a difficult task, in many instances, for the rangers, who are charged with the protection of the Preserve, to determine the lines. This work is further complicated by the fact that oftentimes subsequent and erroneous lines have been made by incompetent surveyors. If the Forest Preserve is to be maintained and protected, the first principle of forest administration, namely, the location of the boundaries, must be systematically and energetically carried on. During the past year there was no appropriation for this work. There are at the present time a large number of cases in which surveys are imperative in order to determine whether or not trespasses have been committed. The old monuments are rapidly disappearing, and the work can be done more economically at the present than in the future. The establishment of these lines will have a very beneficial effect in reducing trespass and, furthermore, enable us to secure greater efficiency from the forest rangers.

TITLES

The fact that the State is the owner of such a large area, title to which has been acquired in various ways, naturally produces some cases in which there are persons who claim adversely to the State. In 1897 the State purchased from the Indian River Company townships 15 and 32, Totten and Crossfield's Purchase, nearly all of which was in Hamilton county. There were upon township 15, at the time of the purchase, several families. There has been pending for several years action against these occupants to determine title. During the past year this office, in co-operation with the Attorney-General's office, made a careful examination of the State's title. Old deeds not on record were discovered and recorded and thereby we established a perfect title subject to cer-

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tain claims of adverse possession. A survey of the township and the occupancies has been made and all the facts submitted to the court. As a result, title to nearly the entire township has been perfected and, by judicial determination, vested in the State. There are other cases where similar procedure should be taken.

UTILIZATION

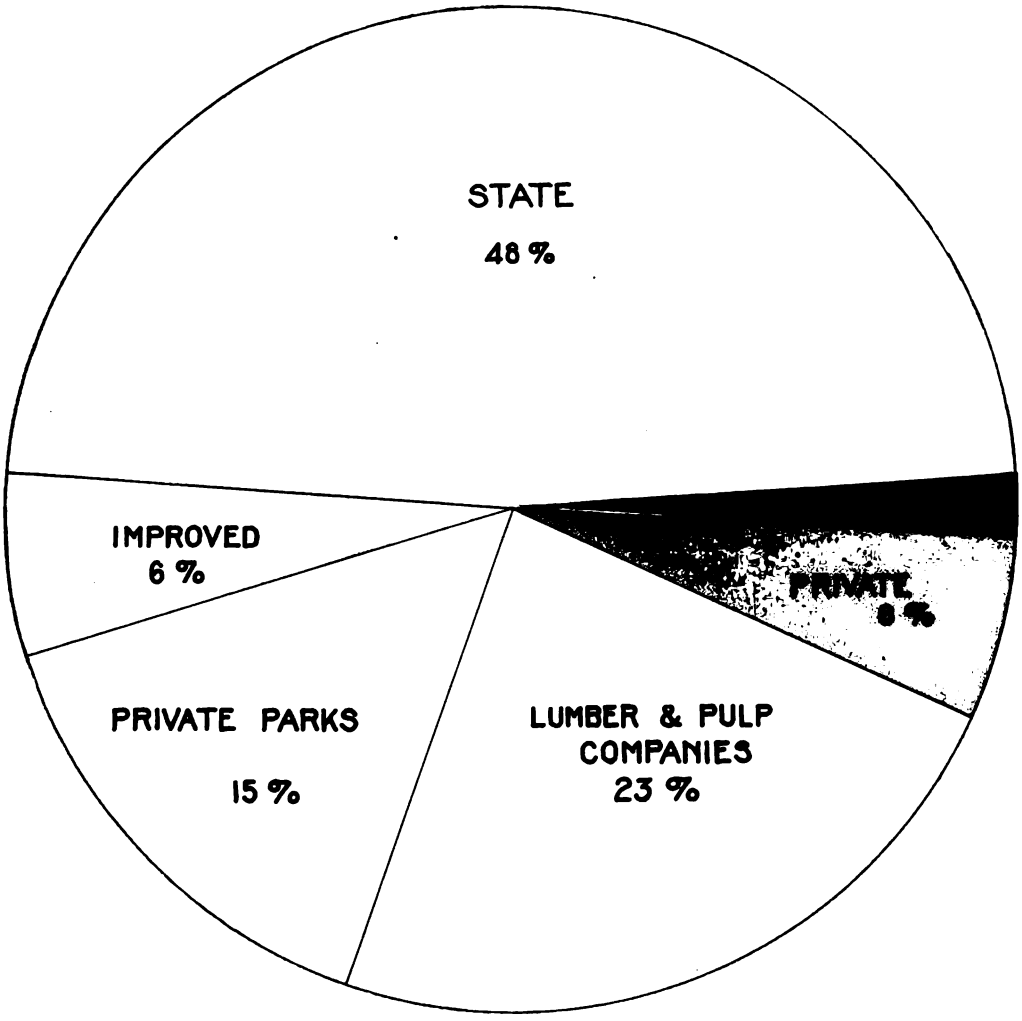
The Forest Preserve to-day contains over 1,825,000 acres of land, an area twice the size of the State of Rhode Island, larger than the State of Delaware, and about half the size of the State of Connecticut. It embraces nearly 7,000 parcels situated in sixteen counties, intermixed with approximately five times as large an area of private property, and is bounded by over 9,000 miles of lines. The topography, character and forest growth is as diversified as is its distribution. The best statistics which we have as to its classification are as follows:

Virgin forest	70,000 acres
Lumbered lands	1,434,000 acres
Denuded lands	120,000 acres
Water	201,000 acres

This area includes some of the most valuable forests in the entire State. The value of the entire holdings from a commercial standpoint has been variously estimated, but $30,000,000 would be a low appraisal.

The use of this great area is a matter of vital importance. The constitutional provision practically prevents any direct use, except for camping, hunting and fishing; and the indirect benefit is protection to the watersheds. The entire wood production on this enormous area is at present a total loss because, on the average, decay equals the growth. It is fair to say that 1,250,000 acres are covered with heavy forest growth. A portion of this area has never been lumbered, and large areas have not been cut over in a quarter of a century. If we assume that the average annual growth per acre is 200 feet, this, in the aggregate, means an annual wood crop of 250,000,000 feet of lumber. Under proper forest management the annual growth could be taken each year and still the necessary forest would be maintained. Proper forest

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THE
ADIRONDACK PARK
CLASSIFIED BY
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1914

DIV. OF LANDS & FORESTS
CONSERVATION COMMISSION
STATE OF NEW YORK

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methods do not mean denudation of the Adirondacks, or destruction of the forest cover. This annual growth of 250,000,000 feet is approximately one-quarter the entire lumber cut of the State. It represents the amount that would be secured by clear cutting each year approximately 25,000 acres of land. If cut into inch boards there would be sufficient lumber to build a board walk 160 feet wide from Albany to Buffalo.

The discussion preliminary to the establishment of the Forest Preserve indicates that its purpose was to provide for a future supply of timber, and to serve as a protection to the headwaters of streams, also for resort and recreation purposes; but all these ends could be accomplished, and at the same time the growth of the timber be utilized. The present constitution, however, practically prevents any use of this great area. Article VII, section 7, of the State Constitution, reads as follows:

> "All lands now owned or hereafter acquired constituting the forest preserve, as now defined by law, shall be forever kept as wild forest lands, they shall not be leased, sold or exchanged, or taken by any corporation, public or private, nor shall the timber thereon be sold, removed or destroyed."

During the two decades since that provision was adopted important economic, industrial and administrative changes have taken place. At that time there was but a slight appreciation of the importance of scientific forestry; there was not a single American school of forestry, and probably not more than five professional foresters in the whole country. The forests were then generally considered as something the maximum quantity of which was fixed and not capable of reproduction or increase by growth. The area included has increased from 720,744 acres to more than 1,800,000 acres; our population has grown from 6,000,000 to 9,000,000 people. It is, therefore, apparent that the prohibition was made at a time when there was but 40 per cent. of the present area, 60 per cent. of the present population, and when the quantity of material affected was but a small part of the whole. However, at the present time, the timber on State land is a large portion of our total forest resources. It is estimated that the amount of standing timber in the Forest Preserve counties in 1894 was

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approximately 40,000,000,000 feet, board measure, and that this quantity has decreased until at present there is not over 25,000,000,000 feet. It is estimated that in 1895 approximately 4,000,000,000 feet, or 10 per cent. was owned by the State, while now the stumpage on State land is approximately 14,000,000,000 feet, or nearly 50 per cent. of the total in the Forest Preserve counties, or 30 per cent. of the whole stumpage of the State. During this period a change has resulted in the proportion of lumber cut in this section from about 1 per cent. of the stand in 1894 to approximately 2½ per cent. at the present time.

The present system does not best provide a future supply of timber. If the annual increment were utilized it would tend to increase forest preservation by reducing the demands upon other areas. Price is regulated by supply and demand; therefore, decreased production of timber caused higher prices, and the increased price tempts the owner to harvest his forest crop.

The timber cut of the State is decreasing. It has been reduced from one and one-quarter billion feet in 1908 to less than one billion feet in 1912. The cut of spruce in one of the largest counties has decreased from approximately 24,000,000 in 1910 to less than half that amount in 1912. The present lumber cut of the State is an enforced one. The portable mills are manufacturing what the larger operators are unable to secure. The cut is approximately five times as much as the annual growth, and consumption is at least sixteen times the growth. The question of the source of supply of our necessary wood materials is one that must be seriously considered. Our demands are great and, under present methods, will soon lead to exhaustion, but if the resources of the State are properly developed the necessary supply can be produced.

The present use of the Forest Preserve is protective and aesthetic. The practice of proper forestry methods will not affect either use. The lumbering operations under such practice as conducted on the parks of Dr. Webb or the Whitney estate are scarcely visible today. These forests have cleaner floors and are freer from debris than similar areas on the State land, in fact such operations have improved the appearance, the dead, down and diseased trees having been removed.

Only a few people appreciate the fact that nearly all the

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Photo. A. Knechtel.

FOREST GROWN UNDER FORESTRY METHODS.

Note straightness, even size, height, small taper, clear length, no idle soil, maximum yield. Compare with illustration of nature's forest.

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merchantable material in a forest is contained in a few of the larger trees. The larger trees are but a small proportion of the whole stand, therefore, their removal does not injure the forest cover.

The purpose could be best accomplished by classifying the Preserve into areas which should be maintained as protective forests and into other areas which could be used for wood production. The former would include mountain tops, steep slopes, or other places where it might be difficult to maintain the forest cover, and which should not, therefore, be lumbered. The latter would include the lower and more level sections where operations could be profitably conducted without injuring the forest cover, leaving, however, belts around lakes and other places where the aesthetic or camping interest was more important than the commercial. The purpose of the lumbering operation would be not only to secure wood materials but also to leave a growing forest of suitable composition. The cutting would vary with different conditions of soil, slope and species; in certain cases trees larger than the diameter limit will be left for seed or other purposes, while trees of smaller size will be cut for silvicultural reasons. In no case should trees be cut except those that are marked and stamped by a forester. The timber to be removed should be advertised and sold by competitive bidding, after the manner of timber sales now conducted by the United States Forest Service. The cutting of any trees not so marked would necessarily be construed as a trespass.

The question of revenue is important. If we assume that the annual production of 250,000,000 feet per year, already referred to, is worth on the average of $4 per thousand stumpage, the annual forest crop now going to waste would be worth one million dollars. This would not be an inconsiderable source of revenue to the State. In addition to the direct revenue, it would inaugurate increased business in the forest sections and furnish employment to labor. The importance of the lumber business is shown by the fact that statistics indicate that for every thousand feet of lumber manufactured $16 is paid for labor. The removal of the ripe and overmature trees would give the remaining stand a large amount of light, and the production of timber would thereby eventually be largely increased.

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The Forest Preserve is, at the present time, somewhat of a luxury. It is difficult to compute its cost because nearly one-half has been acquired through the non-payment of taxes. It is fair to assume, however, that it represents an investment of approximately four million dollars. The interest on this amount at 5 per cent. is $200,000 per year. The taxes which the State pays upon this land amount to $150,000 per year. The cost of fire protection and administration is approximately $15,000 per year; therefore, the total annual carrying charge is not less than $365,000 per year. The cost of fire protection at the present time is not over one-half of a mill per dollar of valuation, which is insufficient. None of these charges is reducible.

The utilization of the ripe timber would change this deficit of $365,000 per year into a net revenue of $635,000.

During the past few years there has been agitation for legislation tending towards State control of cutting of forests on private land. There is no doubt that some operators are sacrificing their forests for present needs, and are cutting trees of too small sizes, a practice which results not only in a loss to themselves but in injury to the State. Their argument is that they have large mills and investments which require the raw material. The regulation of cutting on private lands would necessarily reduce the supply which the mills are securing at the present time. If their argument holds, the securing of a supply of raw material from State land would enable them to lumber their lands more conservatively and thus, instead of having State lands with large and overmature forests and, at the same time private holdings which have to a certain extent been severely cut, the result would be that the entire territory would be lumbered conservatively, better forests would be maintained over larger areas, and the entire production of timber would be increased.

The Constitution also prohibits the leasing of camp sites. There are in the Forest Preserve over 400 miles of suitable camping sites around lakes and ponds. There is enough for the rich and the poor, the transient and the permanent camper. If a portion of these shores could be leased, a large additional revenue would be secured and, at the same time better fire protection would result. It has been demonstrated beyond a doubt that a perma-

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VIRGIN FOREST ON STATE LAND.

Note uneven sized, crooked and dead trees. Compare with German forest. Greatest production not secured by nature.

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nent camper has a personal interest in the locality where he resides, while the transient is usually careless and lacks this interest.

There are about 130,000 acres of land in small isolated parcels, sometimes as small as one-eighth of an acre, and in a few cases consisting of a few hundred, scattered over large areas outside the park and not answering any purpose required by the State. They are expensive to protect and cannot be sold because the Constitution prevents.

There are disadvantages as well as advantages in a change of the constitutional prohibition but the balance is decidedly in support of more use of this large resource. As a question of economy, is it wise to permit the annual waste of 250,000,000 feet of lumber worth, at least, $1,000,000? Should not this great area be made not only self supporting but revenue producing? Why not convert a $1,000,000 loss and $365,000 expense into a substantial revenue? The State owns in the Forest Preserve 120,000 acres of denuded land which cannot be placed under forest cover except by planting and, which, therefore, does not at present fulfill its function. If a portion of this proposed income could be used for reforesting this area the State's revenue would eventually be further increased; funds would be available to purchase other lands, and thus the State's holdings be increased. The present fire protection system should be supplemented by more mountain observation stations and additional forest rangers, and unless this is done the great forests, which the Constitution aims to protect, will not be preserved. The revenue from the lease of camp sites would further increase the income. The small detached parcels outside the Park should be exchanged for lands within and the holdings consolidated, thereby decreasing the protective expense.

Placing this area under honest, practical, forest management will not detract from its beauty or protective value, and will not only give us needed wood supplies and a large net revenue, but will permit the extension of the Preserve. The German, French, Swiss and other nations have been securing these triple results. Are they our superiors?

CHANGES IN CONSTITUTION

The so-called Burd-Merritt amendment, providing for the use of 3 per cent. of the Forest Preserve for water storage purposes,

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was passed by two succeeding legislatures, submitted to the people, and adopted last November. This is the first of the many proposed changes to article VII, section 7 of the Constitution adopted in 1894, which has been submitted to the people and received their approval.

During the past year another amendment was passed by the Legislature, providing for "cutting or removal of mature, dead or fallen timber or trees detrimental to forest growth," also "leasing of camp sites," and "construction of roads and trails necessary for protection against fire. and for ingress and egress," and furthermore permitting "the Legislature to authorize the sale of lands outside the limits of the Adirondack and Catskill Parks as such parks now exist by law. The proceeds of such sales of lands shall be set apart in a separate fund and used only for the purchase of lands or for reforestation in such parks." This amendment must be passed by another Legislature, then adopted by the people at a general election before it will be effective.

FOREST FIRE PROTECTION

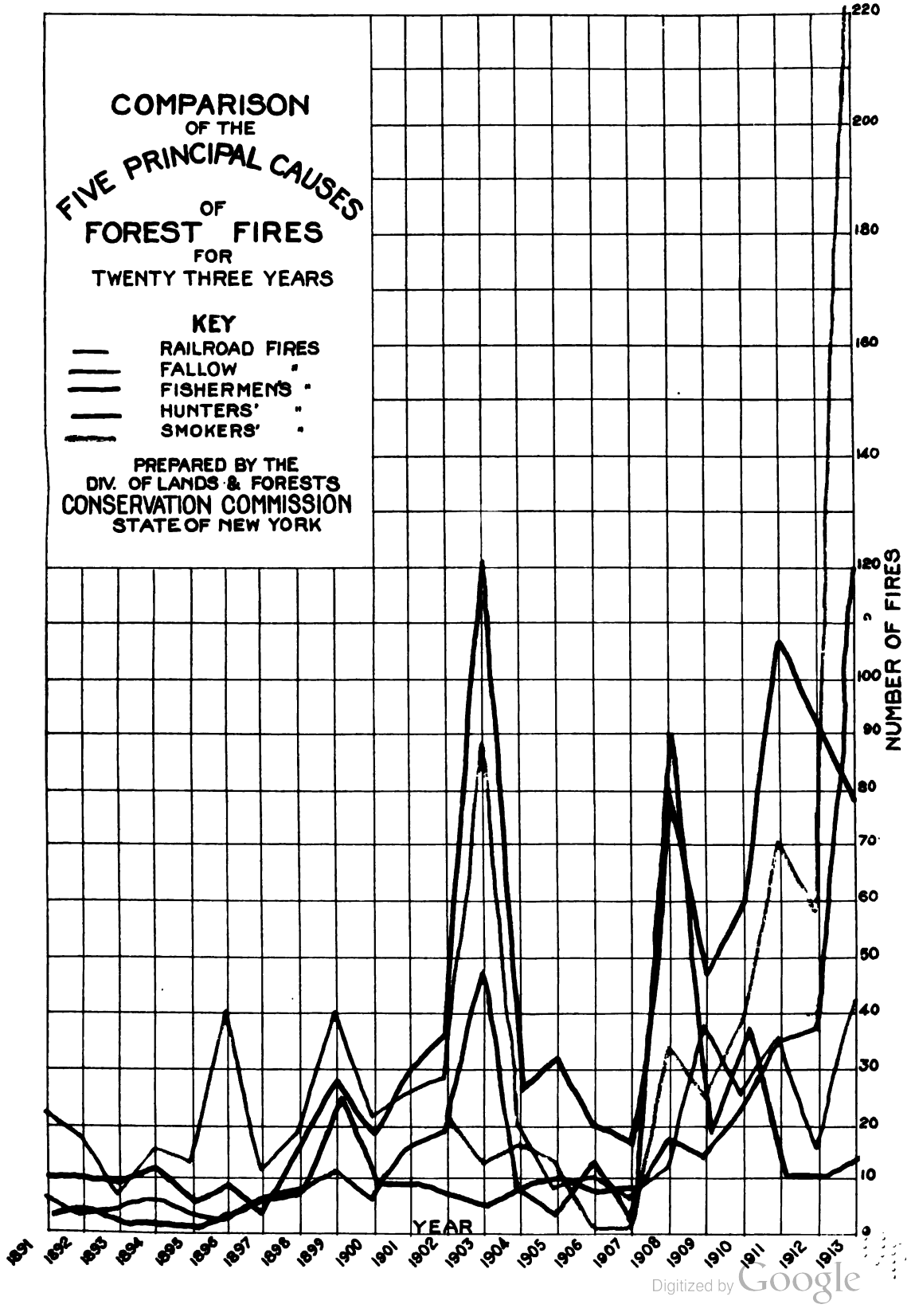
This office is charged with the protection from fire of approximately seven and one-quarter million acres in the central portions of the Adirondack and Catskill Mountain regions. The area protected is the same as during last year.

We have maintained in this region during the fire season a force of rangers and observers for this purpose. The aim is to first prevent as many fires as possible, and, second, to be prepared to extinguish all fires which cannot be prevented. The lines pursued are varied and have produced excellent results.

PREVENTIVE MEASURES

In order to successfully plan a system of fire protection, it is of primary importance to study the causes of fire, the regions, time of year and other elements which contribute to or are responsible for their origin. As a matter of fact, practically all of the fires, the cause of which can be eliminated, are directly or indirectly the result of carelessness. The following table shows the total number of fires reported, classified according to cause:

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Smokers	224
Fishermen	120
Locomotives	78
Campers	64
Berry pickers	31
Incendiary	30
Lightning	26
Clearing land	43
Hunters	14
Burning buildings	8
Fire works	5
Children	5
Steam rollers	4
Stationary engines	2
Bee hunters	1
Maple sugar camp	1
Unknown	32
	688

An examination of the above table shows that fully 85 per cent. of the fires which have occurred within the last year were preventable. If the smokers had not carelessly thrown burning cigars, cigarettes or tobacco upon the dry vegetation, one-third of these fires would not have occurred. If the fishermen had been more careful with their camp fires and tobacco nearly one-fifth of the fires would not have occurred. The same conclusion can be drawn in regard to many of the other causes above mentioned. In order to overcome these difficulties the commission has endeavored to carry on a campaign of education. There was inserted in the "Game Law Booklet," which is supplied to practically every hunter and fisherman, two pages calling attention to the ease with which fires are started, the loss of life, property, business, etc., as a result of carelessness. Thousands of fire notices have been posted along the roads, trails, streams, lakes and ponds with similar words of caution. Twenty thousand copies of a folder in regard to fires were published and have been carefully distributed. Nearly all of the important railroad lines

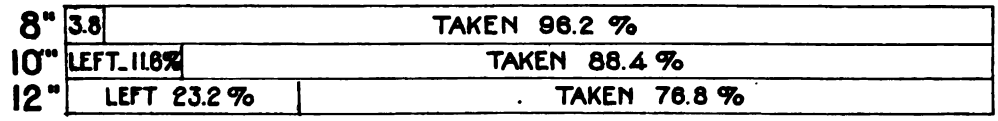
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operating in this State have included in their time tables references to this important matter, and some of them have generously given an entire page. Margins of the Automobile Blue Book have been printed with forest fire warnings. In a similar manner, the telephone companies have in several instances co-operated, while the Mountain Home Telephone Company printed on the front cover of their telephone directory instructions as to reporting forest fires. They also furnished the material and built five miles of line for use on the fire line in the Essex county fire. The rangers have been detailed to the places in their territories where they could accomplish the greatest good. During the spring season, while fishermen are common, they are patroling the streams; during the summertime they are around the places frequented by the tourists and, in the evening, meeting them at the hotels; while during the fall season their activities are largely directed to the sections where hunters are most common, in all instances informing them of the ease with which forests fires are started, the rapidity with which they spread and the consequent damage which they do. The appeal for greater care is made in a personal way, as far as possible, by presenting the aspect of the benefits to the forest in which the particular individuals are most interested.

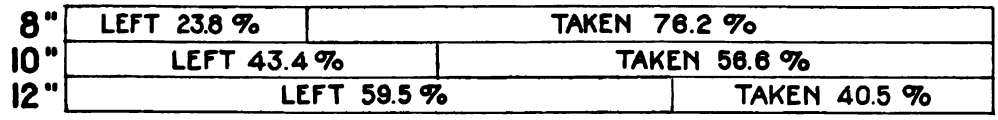
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APPLIED FORESTRY

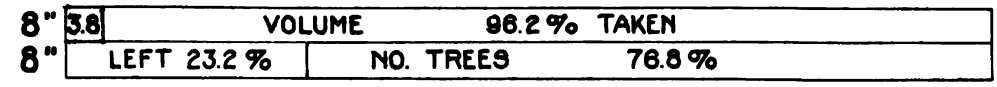
SPRUCE



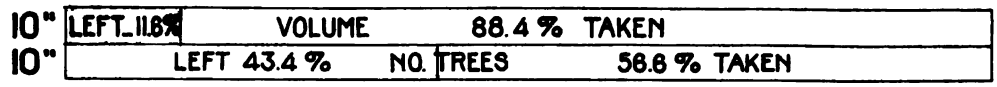
QUANTITY OF MATERIAL BY CUTTING TO VARIOUS DIAMETERS



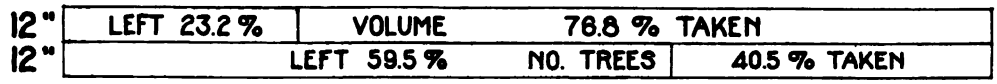
NO. OF TREES BY CUTTING TO VARIOUS DIAMETERS



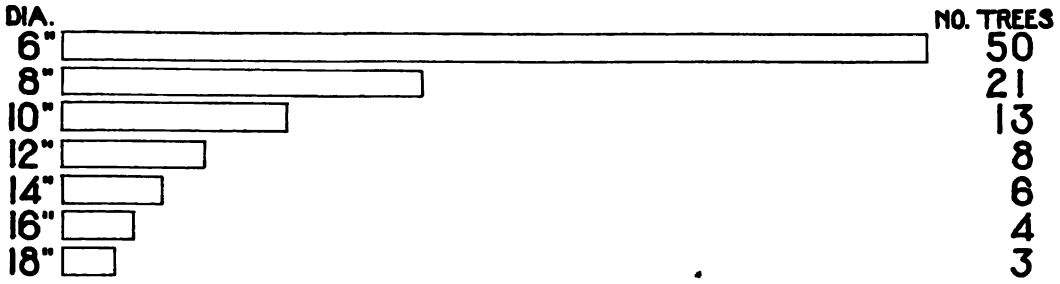
RATIO NO. TREES TO VOLUME_CUTTING TO 8"



RATIO NO. TREES TO VOLUME_CUTTING TO 10"



RATIO NO. TREES TO VOLUME_CUTTING TO 12"



NO. TREES OF VARIOUS SIZES REQUIRED TO MAKE 1000 FEET LUMBER

DIV. OF LANDS & FORESTS
CONSERVATION COMMISSION
STATE OF NEW YORK
1914

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FIRE!

THE DANGER FROM FOREST FIRES IS ALWAYS GREAT

The records show that an exceptionally bad fire season comes about once in every four or five years. In New York State the years 1899, 1903 and 1908 were marked by the most disastrous forest fires the State has every known. In each of the years **1903** and **1908 THE DAMAGE AMOUNTED TO $1,000,000**; that is, property and timber worth that amount were actually destroyed.

HOW ABOUT 1913?

The light fall of snow last winter disappeared much earlier than usual this spring. The period of greatest fire danger, that is, from the time the snow leaves the ground to the time when vegetation becomes green, is lengthened and the danger intensified.

The Conservation Commission is doing its best to prevent forest fires, but **IT NEEDS THE HELP OF EVERY PERSON WHO GOES INTO THE FOREST FOR BUSINESS OR PLEASURE TO MAKE ITS WORK EFFECTIVE.**

The magnitude of the problem is indicated by the fact that in New York State alone industries dependent upon wood manufacture products worth

$4,000,000

annually and employ 200,000 persons. Twenty per cent. of the capital of the country is invested in wood industries.

When timber is destroyed by forest fires a loss is caused, not only to the owner of the timberland, but also to **EVERY MEMBER OF THE COMMUNITY**. The sum of $20 is spent to convert a thousand board feet of logs into the various products which are put upon the market. Practically all of this expenditure is in the form of wages paid to the persons employed in working up the timber into its final form.

In each of the years 1903 and 1908 over **800,000 ACRES OF TIMBERLAND WERE DAMAGED BY FIRE IN NEW YORK STATE ALONE.**

Some of this area was covered by virgin forests. The best estimates obtainable show that **4,000,000,000 BOARD FEET OF TIMBER**, an amount equal to **FOUR TIMES** the annual lumber cut, **WERE DESTROYED BY FIRE IN EACH OF THOSE YEARS, CAUSING A TOTAL LOSS OF $80,000,000.**

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WILL YOU PERMIT A REPETITION OF THIS IN 1913?

If such a loss were caused by a city conflagration, or by a great flood, it would set the country agog with excitement for months. Steps would be taken to prevent a repetition of it.

If such a loss were caused by riot or invasion, it would be considered a national catastrophe and the whole machinery of government would be set in motion to protect the public safety. Millions of dollars would be made available immediately to protect the public safety.

We did not profit by the catastrophe of 1903.

The lessons taught by the serious fires of 1908 were heeded to a certain extent, and a more effective forest fire fighting organization has been developed in the State. However, what we have done is just a beginning. It would not prevent serious damage in a bad fire year like 1903 or 1908.

THE YEAR 1913 PROMISES TO BE A BAD FIRE YEAR!

THE DANGER FROM FOREST FIRES CANNOT BE ELIMINATED WITHOUT THE CO-OPERATION OF EVERY CITIZEN OF THE STATE.

The loss of life caused by forest fires in New York State has been small compared with other regions. **HUNDREDS OF LIVES WERE LOST** in the fires near Hinckley, Minn., in 1893. The appalling loss of life in the forest fires of the Pacific Northwest in 1910, and in the Porcupine Region of Canada in 1911, horrified the whole nation. New York has escaped catastrophes such as these by good fortune and, during the last four years, by increased activity in attacking the fire question; but **UNLESS THE GREATEST CARE IS EXERCISED BY EVERY MAN, WOMAN AND CHILD WHO GOES INTO THE WOODS, YOU AND YOUR NEIGHBORS MAY BE THE VICTIMS OF A SIMILAR CONFLAGRATION.**

IF YOUR HOME is in the forest, a bad forest fire may destroy your entire property and leave you destitute.

IF YOU OWN A FARM, the profits of your agricultural operations may be wiped out in a few hours by the fire demon.

IF YOU ARE A GUIDE, the burning of the forests, where you take parties for pleasure, means the loss of your source of employment.

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IF YOU OWN A HOTEL in the mountains, your house will not be patronized when the scenic beauties of the mountains around you are destroyed by fire.

IF YOU ARE A CAMPER, a single bad forest fire may destroy the attractive features of your favorite camp site.

IF YOU ARE A FISHERMAN OR HUNTER, your sport may be spoiled by the burning over of the forest you visit every year.

IF YOU ARE A LUMBERMAN, you know that one bad fire season may destroy your source of raw material and force you to shut down your plant. That may mean bankruptcy.

IF YOU GO INTO THE WOODS FOR ANY PURPOSE, you want to **PREVENT FOREST FIRES.**

IF YOU NEVER GO NEAR THE FOREST, you cannot get away from the fact that wood enters into your daily life in one form or another, in the house you live in or the table from which you take your meals, and you should remember that **FOREST FIRES MEAN HIGHER LUMBER PRICES.**

There are at present 25,000,000,000 board feet of standing timber in the State. In the past **THE LOSS OF TIMBER DUE TO FIRES AND INSECT DEPREDATIONS HAS BEEN AS MUCH AS THE ANNUAL AMOUNT OF TIMBER ADDED BY GROWTH. IN YEARS LIKE 1903 AND 1908 IT HAS BEEN MUCH GREATER.**

At the present rate of cutting, the standing timber in this State will last only twenty-five years.

ANOTHER FIRE SEASON LIKE 1903 OR 1908 WILL BRING THE TIME OF TIMBER FAMINE FOUR YEARS NEARER.

Nearly all the damage done by forest fires is preventable. **NINETY PER CENT** of all forest fires are caused by **CARELESSNESS. ELIMINATE CARELESSNESS** and you will practically **PUT AN END TO FOREST FIRES.**

The pleasure that the tourist or the camper takes in the woods will not be lessened by his efforts to be careful with fire and to take all precautions against its escape; the lumberman will not sacrifice one penny of his profits by seeing that his logging crews are careful during dry weather. On the contrary, these persons are working to **PROTECT THE FORESTS** and to **PRESERVE THEM** for their use in the future.

The guide is usually a careful man who will see that his camp fire is thoroughly extinguished before leaving it; the cautious

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lumberman will post fire warnings in his camps and will see that his logging crews are careful with fire in the woods. Some lumbermen have prohibited their men from smoking during dry times, except within the camp buildings.

EXERCISE THE SAME CARE WITH FIRE IN THE WOODS THAT YOU WOULD TAKE WITHOUT QUESTION IN YOUR OWN HOME OR IN THE CITY.

The State and many other owners of large tracts of forest land allow the use of their land by the public with very few restrictions. The State law provides that fires may be lighted for cooking, warmth, and insect smudges; but that before a fire is lighted ample space must be cleared around the spot so that the fire shall not spread, and the fire must be thoroughly extinguished before it is left.

Several lumber companies owning large tracts of timberland in the Adirondacks allow persons to camp on their land; but they require those persons to first secure permits, so that they may be held **RESPONSIBLE FOR FIRES WHICH THEY MAY SET.**

No permit is required to camp on State land in the forest preserves; but **CAMPERS ARE HELD STRICTLY RESPONSIBLE** for any damage or injury to the forest which may result from their carelessness or neglect.

IF YOU, MR. CAMPER, abuse your privileges and **FAIL TO EXERCISE** sufficient **CAUTION, THIS LIBERAL POLICY** of allowing everybody to use the forests **WILL HAVE TO BE ABANDONED. IF YOU WOULD PERPETUATE YOUR CAMPING TRIPS, YOU MUST PROTECT THE FORESTS.**

DON'T drop lighted matches or throw them down along the road, or out of a car, where they may start forest fires.

DON'T leave burning cigars, cigarettes or pipe ashes where they may set fire to inflammable material.

DON'T leave your camp fire until you are absolutely sure it is out.

DON'T set fires to clear land or burn brush in dry times.

PUT OUT ALL FIRES YOU SEE IF YOU CAN. IF THE FIRE IS TOO LARGE FOR YOU TO PUT OUT ALONE NOTIFY THE NEAREST FOREST RANGER OR FIRE WARDEN AT ONCE.

BY PUTTING OUT SMALL FIRES YOU CAN PREVENT BIG ONES.

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WILL YOU HAVE THIS?



BEFORE THE FIRE

OR THIS?



AFTER THE FIRE

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The effect of this campaign of education and co-operation has already manifested itself by the decrease in the number of fires. The spring season is, on account of the dead vegetation present upon the ground, always one in which fires occur. The snow fall during the past winter was far below normal and, as a result, the period before vegetation became green was longer than the average, consequently the period of danger was lengthened. In spite of these facts, however, the number of fires did not materially increase, and greater interest was shown by parties, who frequented the woods in extinguishing and reporting fires.

This campaign of education has only started. It must be conducted indefinitely, and every available means and opportunity be taken to point out to everyone who travels through or uses, or is in any way connected with or interested in our forests, the damage caused through carelessness in its many forms. Smokers, as already stated, are the cause of the largest number of fires, and they are the hardest to prevent, because, instead of fires which originate through their carelessness starting at any particular place, they appear nearly everywhere.

The neglected camp fire in an ever present source of danger. In one instance such a fire escaped and was burning rapidly through the woods when it was promptly detected by an observer on the mountain station, who immediately notified a ranger. The latter reached the place in time to arrest the parties who were responsible, and they later refunded to the State the entire expense of extinguishing this fire.

Co-operation has been secured from the railroads in properly equipping locomotives which operate over the various lines, by repairing defects and maintaining such engines in a fairly safe condition.

The duty of inspecting the rights of way and the fire protective appliances on locomotives of all railroads in the State was conferred upon the Conservation Commission by the Legislature of 1912. A tremendous impetus was given to the work of inspection in that year and there has been no relaxation in 1913. There are over sixty railroads in the State with 8,361 miles of rights of way, over which are operated 6,886 locomotives. During the year, 4,538 locomotives, 66 per cent. of the total number in opera-

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tion, have been examined by the inspectors of the Department. Of the 8,361 miles of rights of way 97 per cent. has also been inspected.

The clearing of rights of way of all inflammable material is one of the most important features of preventing railroad fires. If a spark or hot cinder falls upon a right of way grown high with weeds and brush and encumbered with fallen logs and branches, a most favorable opportunity is offered for the spreading of fire off the right of way into adjoining forest land. On the other hand, if a sufficient space on each side of the track has been mowed and cleared up, in nine cases out of ten the spark or cinder will not start a fire; if a fire springs up, it can usually be readily controlled and extinguished on the clean open ground.

For this reason, a great deal of attention has been devoted to this branch of the work. Cases of unsatisfactory conditions on rights of way have been brought to the attention of the proper railroad officials. Where the debris is to be burned, if it lies within the area of the "Fire Towns," a permit must be granted before such burning can be done. District rangers have done all in their power to facilitate permit burning of this character.

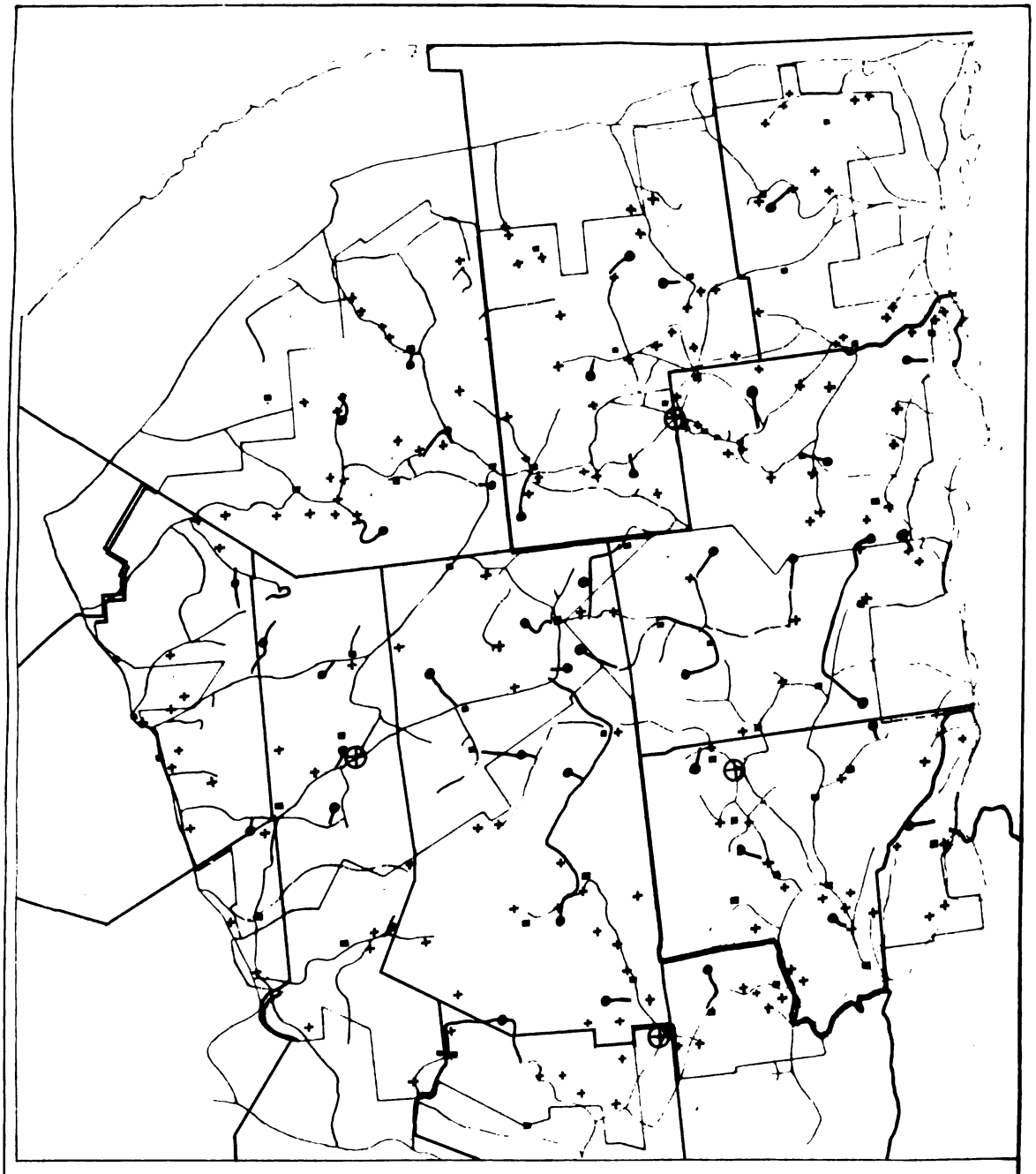
The result has been that in nearly all instances rights of way have been cleared up in accordance with the law and inflammable material has been burned or otherwise disposed of.

The requirements of the Public Service Commission for spark arresters and ash pans were modified in December, 1912, to permit the use in locomotive front ends, and at openings around ash pans, of netting of oblong mesh. Tests conducted before the Public Service Commission and representatives of this Department showed that the oblong mesh netting was as effective as the square mesh in preventing the escape of sparks and coals, while the claim has been made that a better draft can be secured with the former.

Generally speaking, the officials of the railroads have cooperated with our inspectors in putting locomotives into satisfactory condition. They are showing appreciation of the fact that fire protective appliances on locomotives mean decreased fire claims.

First inspections of locomotives in 1913 showed, generally,

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FIRE PROTECTIVE SYSTEM_ADIRONDACK FOREST

LEGEND

BOUNDARIES OF FIRE DISTRICTS
TELEPHONE LINES_COMMERCIAL
" " _STATE
" " _PRIVATE

DISTRICT FOREST RANGERS
FOREST RANGERS
FIRE WARDENS
OBSERVATION STATIONS

DIV. OF LANDS & FORESTS
CONSERVATION COMMISSION
STATE OF NEW YORK
1913

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better conditions than the same inspections in 1912, probably owing to the fact that numerous inspections were made during the winter in repair shops, while the locomotives were undergoing general repairs.

The policy inaugurated in 1912 of holding conferences with the railroad officials for correcting defective designs of locomotives and of requiring minor defects to be corrected at once, was followed during 1913. Defects of design are becoming fewer. Many improvements were made during the winter of 1912–1913 and more are being planned for this winter. Minor defects, such as torn spark arrester netting, defective slides, etc., are repaired promptly in the roundhouses.

It is, perhaps, superfluous to state that inspections of "front ends" can only be made when locomotives are out of service, for the fires must be drawn and the engines allowed to cool. Defective ash pans, on the other hand, can often be detected by an examination of the locomotive while it is in service.

Special attention has been given during the present year to inspection of locomotives in service. Men have been stationed at points where a large number of trains must stop for water or other purposes, and each locomotive has been carefully examined. In this manner many minor defects have been discovered and reported to the railroads.

For a number of years it has been known that in many instances where locomotives were equipped with suitable fire protective devices the advantages of this equipment were lost, because the engine crews failed to keep the appliances in proper condition. A common example of this neglect was the operation of locomotives with ash pan slides left partly open, permitting coals to fall out of the pan to the right of way. In this way an engine crew could render worthless the most excellent protective devices.

Inspection of locomotives in service has enabled the Department to make great progress in reducing this evil. As fast as cases of neglect on the part of the engine crews were discovered they were reported to the proper railroad official. The condition of affairs was discussed and the folly of allowing the engine crews to absolutely destroy the value of the protective appliances was pointed out. As a result, most of the railroad men have co-

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operated heartily with our inspectors, and have disciplined their men severely for failure to maintain all locomotives in satisfactory condition while on the road.

The "Follow up" system has been the key-note of our success in railroad inspection work. One examination a year is not enough. A locomotive may be in perfect condition today, while tomorrow's inspection may disclose a warped ash pan, a missing slide, etc. Therefore, the inspectors have made frequent visits to the roundhouses and shops and have kept a vigilant watch of as many locomotives as possible.

During the summer special attention is given to correcting minor defects which can be repaired in the roundhouses. In the winter, railroad traffic is lighter, and that is the time devoted to sending locomotives through the "shops" for heavy repairs. Then it is, that the inspectors are needed to supervise the work of repairs in order to see that defects of design are corrected.

The following table contains a summary of this year's inspection work accomplished by representatives of this Department:

Inspection of Railroad Locomotives and Rights of Way by the Conservation Department in 1913

RAILROADS	Number of locomotives	Locomotives inspected	Miles in State	Right of way inspected
				Per cent
Adirondack and St. Lawrence	1	1	4	100
Boston and Maine	65	65	122	100
Brooklyn Cooperage Co	4	4	28	100
Bath and Hammondsport	3	3	10	100
Buffalo and Susquehanna	77	67	112	100
Buffalo, Attica and Arcade	2	2	27	100
Buffalo, Rochester and Pittsburg	277	78	180	80
Boston and Albany	214	125	57	100
Carthage and Copenhagen	2	2	9	100
Cranberry Lake	3	3	4	100
Catskill and Tannersville	2	2	6	100
Catskill Mountain	4	4	20	100
Central New England	64	52	193	60
Dansville and Mt. Morris	2	2	15	100
Delaware and Northern	6	6	46	100
Delaware and Hudson	454	426	696	100
Delaware, Lackawanna and Western	706	316	494	45
Dunkirk, Allegany Valley and Pittsburg	12	12	15	100
Emporium Lumber Co	3	3	2	100
Erie	835	800	877	100
Fonda, Johnstown and Gloversville	7	7	81	100
Glenfield and Western	4	4	20	100
Greenwich and Johnsonville	3	3	32	100
Hinckley Construction Co	5	5	3	100
Horseshoe Forestry Co	2	2	13	100
International Paper Co	2	2	1	100
Jamestown, Chautauqua and Lake Erie	5	3	42	100
Keeseville, Ausable Chasm and Lake Champlain	1	1	6	100
Keery Chemical Co	1	1	1	100
Kanona and Prattsburg	2	2	11	100
Lehigh and Hudson River	46	44	25	100

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Inspection of Railroads Locomotives and Rights of Way by the Conservation Department in 1913—*Concluded*

RAILROADS	Number of locomotives	Locomotives inspected	Miles in State	Right of way inspected
				Per cent
Lehigh and New England	20	14	24	100
Lehigh Valley	412	117	643	75
Long Island	191	178	389	100
Lake Champlain and Moriah	7	7	16	100
Little Falls and Dolgeville	3	3	14	100
Lowville and Beaver River	4	4	11	100
Marcellus and Otisco Lake	2	2	9	100
Middleburg and Schoharie	1	1	5	100
Mac-A-Mac	2	2	15	100
Moose River Lumber Co.	1	1	4	100
New York, Ontario and Western	216	216	494	100
New York, Susquehanna and Western	28	16	28	100
Newark and Marion	2	2	6	100
Northern Central	60	60	111	100
New York, New Haven and Hartford	382	86	79	100
New York Central and Hudson River	2,024	1,313	2,590	90
New York, Auburn and Lansing	6	6	39	100
New York and Pennsylvania	5	5	27	100
Newton Falls and Northern	2	2	12	100
New York Lime Company	2	2	8	100
Norwood and St. Lawrence	3	3	19	100
Paul Smiths	1	1	7	100
Pennsylvania	528	273	330	50
Pittsburg, Shawmut and Northern	45	42	45	100
Rutland	86	86	171	100
Skaneateles	3	3	5	100
Schoharie Valley	1	1	5	100
Sterling Mountain	2	2	8	0
Tuneassa	2	2	7	100
Ulster and Delaware	29	29	131	100
Unadilla Valley	2	2	7	100
Total	6,866	4,538	8,361	96.7

The rangers have promptly reported violations of law in setting fires without permits or names of persons who were responsible for fires, and a large number of fines have been imposed. Nearly the entire expense, in some towns, of extinguishing the fires, has been repaid by the parties who were responsible. The effect of this work is also very beneficial in that such cases are given publicity, and not only the person who was punished but others who have knowledge are far more cautious in regard to the use of fires.

Violations of Fire Law in 1913

NATURE OF VIOLATION	Total number of violations	Number of cases dropped	Number of cases pending	Number of cases settled	Amount recovered
Fires set without permit in violation of Section 97	40	10	8	22	$340 19
Recovery of expense of fighting fires (Section 98)	35	5	4	26	184 39
Total	75	15	12	48	$524 58

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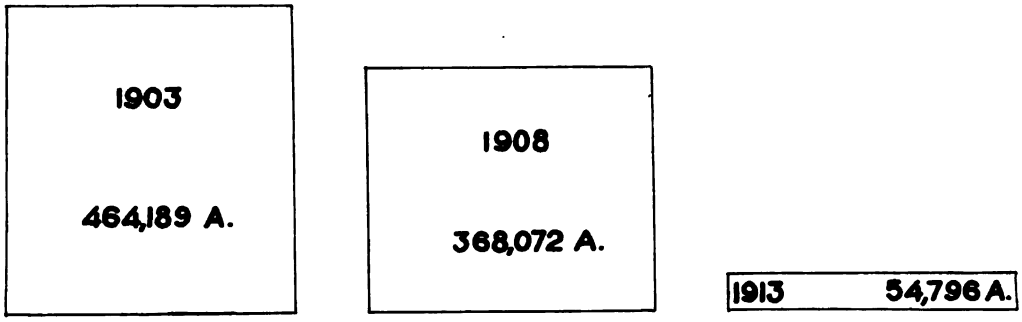
PROTECTIVE MEASURES

During the major portion of the past season there has been maintained a force of five district rangers, sixty-four rangers and forty-nine mountain station observers, together with six railroad inspectors. This protective force was inaugurated in 1909, after the disastrous fires of the previous year. It is fair to say that the past summer has, on account of the deficiency in rainfall, been fully as dry as that of 1908. Inasmuch as reduction of rainfall produces drought, and results in dryness of material upon the ground causing increased fire danger, fires are very readily ignited. The past year was, therefore, the first one in which this system has been put to the supreme test. The damage caused by the fires of 1903 was $864,082; during 1908, $802,135, while the past season, under similar conditions, was but $51,445. The area burned in 1903 was 464,189 acres; in 1908, 368,072 acres; in 1913, 54,796 acres. A comparison of these figures under similar conditions of drought clearly demonstrates the wisdom of the change in the system, the success, and, furthermore, the efficiency of the present force. The change has not only resulted in reducing the acreage burned 85 per cent. and a reduction of 94 per cent. in damage, but furthermore the cost of extinguishing the fires in 1908 was $189,660, while during the present season the entire cost of the ranger force, including salaries and expenses, together with disbursements for extinguishing the fires, aggregated only $96,122.53. The expense of this work will be further reduced by rebates of $21,601.60 from the towns. All of this was accomplished in spite of the fact that the number of reported fires increased from 605 in 1908 to 688 during the past season. (In 1908 fires were not reported unless an acre or more was burned over.)

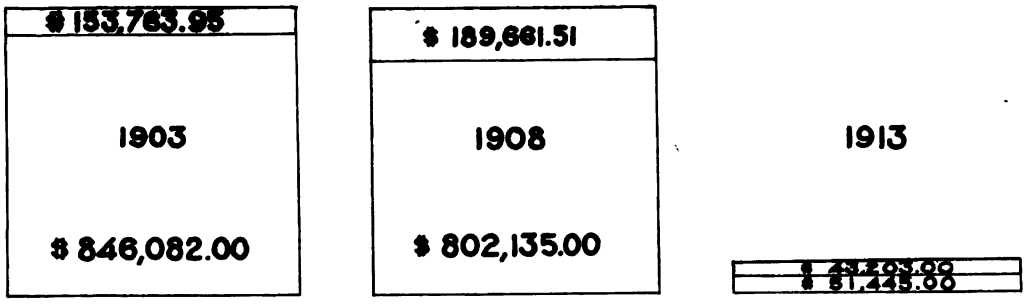
The protective plan consists in detecting fires in their incipient stages and dispatching necessary help to extinguish the same. This results in reducing the acreage burned, greater saving of forest property, and economy of labor. This detection is accomplished through the observers on the numerous mountain stations. Their efficiency is shown by the number of fires which they have reported and the fact that such fires were promptly noticed and the rangers notified.

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FOREST FIRES



AREA BURNED



COST OF FOREST FIRES

EXPENSE OF EXTINGUISHING

LOSS OF PROPERTY

YEAR	NO. FIRES	TOTAL NUMBER ACRES BURNED	ACRES STATE LAND BURNED	TOTAL DAMAGE IN DOLLARS	AVE. AREA PER FIRE	AVE. LOSS PER FIRE	NO. OF MT. STA.
1908	605	368,072	54,912	802,135	608	1326	0
1909	307	11,759	198	23,126	38	75	15
1910	277	12,680	1,570	17,803	46	64	20
1911	506	37,909	6,794	43,664	73	86	36
1912	383	6,990	629	11,340	18	30	49
1913	688	54,796	11,437	51,455	79	75	50

YEAR	TOTAL NO. ACRES PROTECTED	TOTAL NO. ACRES BURNED	%	ACRE PROTECTION COST
1908	8,443,760	368,072	4.4	.022
1909	13,686,400	11,759	0.1	.003
1910	7,200,000	12,680	0.2	009
1911	7,230,000	37,909	0.5	.006
1912	7,270,000	6,990	0.1	.009
1913	7,270,000	54,796	0.7	.014

COMPARISON OF FOREST FIRES, 1908-1913

SHOWING AREA PROTECTED, BURNED; & COST, DAMAGE, ETC

DIV. OF LANDS & FORESTS

CONSERVATION COMMISSION

STATE OF NEW YORK

1913

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List of Mountain Stations (in operation) in 1913 and Number of Fires Reported From Each

STATION	Fire district	County	Town	Fires reported, 1912	Fires reported, 1913
Adams	2	Essex	Newcomb	7	7
Ampersand	1	Franklin	Harrietstown	6	21
Arab*	3	St. Lawrence	Piercefield	3	4
Bald	3	Lewis	Croghan	19	47
Balsam Lake*	5	Ulster	Hardenburgh	4	4
Beaver Lake	3	Herkimer	Webb	3	13
Belfry*	2	Essex	Moriah	7	6
Belleayre	5	Ulster	Shandaken	5	16
Black*	2	Washington	Dresden	14	13
Blue	3	Hamilton	Indian Lake	1	14
Boreas*	2	Essex	No. Hudson	8	6
Cat	3	St. Lawrence	Clifton	14	25
Catamount	3	St. Lawrence	Colton	6	31
Cathead	4	Hamilton	Benson	35	67
Crane	2	Warren	Johnsburgh	20	27
DeBar*	1	Franklin	Duane	4	6
Dunbrook†	3	Hamilton	Indian Lake	.....	.....
Fort Noble	4	Herkimer	Wilmurt	21	11
Gore*	2	Warren	Johnsburgh	10	17
Hamilton	4	Hamilton	Lake Pleasant	32	36
High Point*	5	Ulster	Wawarsing	25	5
Hunter*	5	Greene	Jewett	8	18
Hurricane	1	Essex	Keene	23	25
Kempshall	3	Hamilton	Long Lake	8	11
Loon Lake	1	Franklin	Franklin	4	16
Lyon	1	Clinton	Saranac	35	27
Makomis	2	Essex	No. Hudson	5	9
Mohonk	5	Ulster	New Paltz	3	10
Moosehead	3	St. Lawrence	Colton	6	13
Moose River*	3	Lewis	Lyonsdale	4	14
Mt. Morris	1	Franklin	Altamont	10	8
Ohmer*	4	Saratoga	Day	37	24
Owlshead*	3	Hamilton	Long Lake	10	7
Pharoah	2	Essex	Schroon	21	22
Poke-O-Moonshine*	1	Essex	Chesterfield	7	6
Prospect*	2	Warren	Caldwell	16	24
Rondaxe*	3	Herkimer	Webb	2	8
St. Regis	1	Franklin	Santa Clara	8	7
Slide†	5	Ulster	Shandaken	1	.....
Snowy	4	Hamilton	Indian Lake	27	29
Stillwater	3	Herkimer	Webb	5	42
Swede	2	Warren	Hague	16	18
Tomany†	4	Hamilton	Arietta	5	.....
Tooley Pond†	3	St. Lawrence	Clare	.....	.....
Twadell*	5	Delaware	Hancock	4	13
Vanderwhacker	2	Essex	Minerva	26	28
Wakeley*	4	Hamilton	Lake Pleasant	1	5
West	3	Hamilton	Long Lake	.....	11
Whiteface	1	Essex	Wilmington	10	19
Woodhull	3	Herkimer	Wilmurt	8	26
Total	.....	.....	.....	554	816

* No observers appointed in 1913 until after June 12th.
† Not operated during season of 1913.

This table indicates that 816 fires were reported, while the records show that there were only 688 fires, therefore, indicating that the same fire has been observed in some cases by more than one station, except in some instances when the fire observed was not in one of the so-called " Fire Towns " and, therefore, not in-

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cluded in our list of fires. A careful check has been maintained upon all fires reported and whenever an observer has failed to report a fire which was within a reasonable radius of his station an investigation has been made to determine if it was visible from the station. There are, however, areas which, on account of topography, are not suitably protected from the established mountain stations and there is need of an increased number of stations.

During the first few years of the present protective system, telephone lines to mountain stations were built in large number, and, on account of the limited funds, the construction was cheap. During the past year a large proportion of these lines has been rebuilt, largely by the ranger force during wet weather. The value of the observer on the mountain station depends entirely upon the efficiency of his telephone apparatus. Therefore, every effort is being made to establish these lines in a most thorough manner in order that the service may be perfect at the time required.

One new mountain station has been constructed during the year, at Tooley Pond Mountain, near New Bridge, in the southern part of St. Lawrence county. This station overlooks a large area of timber land in the western foothills of the Adirondacks. The expense of material for the tower, cabin and lines was borne by the R. W. Higbie Lumber Company.

During the spring, also in the fall and portions of the summer, the climate on the summits of the various mountains, where the observers are required to live, is very cold and it is necessary to have suitable quarters. During the past season several cabins for the rangers have been built replacing tents which were formerly used. The latter proved both expensive and difficult to maintain.

Roads and trails are very important in any comprehensive system of fire protection. They not only are routes which enable the men to reach the fire with less exertion and quicker, but also serve as fire lines or points from which back fires may be set or an advancing fire checked. During the past season there has been but little time, on account of the extent of dry weather, for this work. However, ninety-four miles of such roads and trails have been cleared and made available for these purposes.

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The question of having an adequate supply of tools and camp outfits properly located at various points throughout this enormous area is not only of great importance but is surrounded with difficulties. It is impossible to predict where fires are going to originate; hence the difficulty in properly placing the necessary tools. We have, however, endeavored to have a suitable supply for all ordinary fires located at advantageous points. The two large fires of the present year necessitated greater equipment; eight new tool depots were established during the past season; and the Adjutant-General kindly lent the Commission a complete camp outfit for eighty men who were employed in fighting fire. The Quartermaster of the United States Army also lent a quantity of blankets for similar purposes.

It has long been felt by the Department that the efficiency of the ranger force could be improved by bring the men together for a few days of practical instruction in matters pertaining to their work. Accordingly a convention was held in the Albany office, February 4 to 8, inclusive.

Talks were given by members of the office force on various subjects, including fire fighting, top lopping, looking up survey lines, making valuation surveys, silviculture, etc. The rangers were given practice in plotting fires, estimating areas, making out reports, and drawing simple maps. The rangers took an active part in the discussions and many excellent ideas were advanced. Subsequently the men showed a greater interest; and increased efficiency has been secured. This work has been continued in a similar degree by smaller meetings in which the men in all or a portion of a district were called together, and discussed matters of mutual benefit.

The Legislature of the past year re-enacted the top lopping law and provided that the limbs and branches of evergreen trees which were cut in the area under fire protection, should be cut off from the trunks or branches over 3 inches in diameter. The penalty of $2 per tree for failure to comply with the law was also restored. The enforcement of this law has been entrusted to the rangers, and most of the operators have cheerfully complied with the provisions of this section.

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Experiments conducted by the Dupont Powder Company at a meeting of the Eastern States Foresters, held at Wanakena, the past summer, is of much interest. A line of two hundred feet in length was planted with dynamite. The holes were approximately three feet apart, and three-quarters of a pound of dynamite was planted in each at a depth of two feet. All of the charges were connected with an electric detonator. A forest fire was set so as to run through the woods towards the line of charges. Just before the fire reached the line the dynamite was discharged. The result was a V shaped trench about three feet deep and three feet in width at the top and through to the mineral soil. It clearly indicated that, under certain circumstances, dynamite could be used to advantage in fire fighting. There are, however, disadvantages in that dynamite and detonators are expensive and heavy to transport and the handling of dynamite is dangerous.

FIRES OF THE YEAR

The present year has been conspicuous by the scarcity of rainfall. The winter of 1912–13 was marked by the almost entire absence of snow. Therefore, there was not the customary supply of soil moisture. This abnormal condition not only continued through the summer, but as the season advanced the rainfall was less frequent. This condition was general throughout the Adirondacks and exceptionally severe through the eastern and southern portions of that region. Forest fires always follow scarcity of rainfall. The following table which indicates the fires by months is not only interesting, but indicates the condition during the spring season and its continuance:

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Effect of Forest Fires.

Previous fires destroyed the forest growth. This represents character of land burned in fire in North Hudson this year.

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Number of Forest Fires by Months During 1913

MONTHS	REGION		Total
	Adirondacks	Catskills	
February	3	.....	3
March	7	3	10
April	27	23	50
May	132	11	143
June	73	7	80
July	78	15	93
August	176	6	182
September	94	6	100
October	27	.....	27
November	.....	.....	.....
Total	617	71	688

The season was much drier in the Adirondacks than in the Catskills, and the fires in the latter form only 10 per cent. of the total number and cover only 8 per cent. of the total area burned. The month of April was the most productive of fires in the Catskills, while May and August saw the greatest number in the Adirondacks. The total number reported was 688. This is 83 fires more than were reported in 1908 under similar drought conditions. In 1908, however, no fires which burned over less than an acre were reported. On that basis, the comparison was 528 in 1913 as against 605 in 1908. The acccompanying table gives complete statistics as to the number of fires, acreage burned, resulting damage and expense to extinguish. These statistics are classified both by counties in which the fires occurred and by causes. Reference has already been made and statistics given, comparing the result of the past year with that of 1908. When the conditions of drought are taken into account, the extent of those fires and the consequent damage indicate great improvement in forest fire protection and marked efficiency of the force charged with this duty. The success of the system is fully demonstrated and the only weakness developed is that more mountain stations should be established. During the year only seven-tenths of 1 per cent of the area under protection was burned, although the average area guarded by each ranger was over 100,000 acres. The entire cost of protection, including the expense of extinguish-

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ing fires, was less than fourteen mills per acre, which is on the average, approximately two mills per dollar of valuation.

During the latter part of August fires were occurring in all parts of the forest territory. They were being detected constantly by the observers, and it became a question of how many fires the rangers could handle with the limited amount of help available in the localities. A large number of the rangers were working night and day, securing assistance, going to fires, getting them under control, appointing competent foremen, and then communicating with their headquarters, and, in most instances, immediately starting for some other fire. At this time, the commission authorized the district rangers to employ rangers temporarily in localities which they considered dangerous and, in this way, the difficulty was, to a large extent, surmounted.

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FOREST FIRE RUNNING OVER OLD "BURN."
Illustration of comparatively small damage resulting. The dry material upon ground made fire-fighting very difficult.

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Forest Fire Losses, 1913, by Counties

COUNTY	Number of fires	Total acreage burned	Total expense of fighting fires	Acres Private Land Burned				Acres State Land Burned				Value of standing timber destroyed	Value of logs, lumber, etc., destroyed	Value of buildings, etc., destroyed
				Virgin timber	Second growth	Brush	Waste	Virgin timber	Second growth	Brush	Waste			
ADIRONDACKS														
Clinton	43	338	$832 63	.....	178	110	346	.....	102	101	1	$1,535	.....	$95
Essex	104	20,783	17,089 84	76	243	7,723	5,755	426	141	1,419	5,000	4,925	$18,065	400
Franklin	70	7,155	4,653 53	75	22	2,844	3,121	101	21	40	931	4,635	1,200	25
Fulton	12	277	240 65	8	80	112	77	.....	.....	.....	.....	235	.....	.....
Hamilton	58	2,274	1,570 17	51	106	303	21	1	836	859	97	2,410	.....	75
Herkimer	47	1,790	2,035 49	3	924	397	36	.....	410	20	.....	3,230	10	325
Lewis	44	6,580	6,011 08	10	618	5,027	905	.....	10	10	.....	1,730	120	.....
Oneida	10	352	961 25	.....	85	263	3	.....	.....	1	.....	300	.....	.....
Saratoga	33	1,361	1,122 30	.....	561	740	9	.....	51	.....	.....	1,900	.....	.....
St. Lawrence	80	7,310	2,973 05	76	748	4,429	1,379	.....	375	103	200	1,635	700	20
Warren	101	1,405	3,561 27	6	986	159	79	30	42	43	60	3,400	370	355
Washington	15	264	428 27	.....	128	113	23	.....	.....	.....	.....	330	20	.....
Total	617	50,389	$41,479 53	305	4,679	22,220	11,754	558	1,988	2,596	6,289	$26,265	$20,485	$1,295
CATSKILLS														
Delaware	21	187	$29 27	.....	65	85	33	.....	.....	4	.....	$535	$125	$15
Greene	16	101	238 82	.....	72	20	7	.....	.....	.....	2	215	.....	.....
Sullivan	5	138	106 80	20	88	10	20	.....	.....	.....	.....	650	.....	.....
Ulster	29	3,981	1,124 62	15	2,034	1,308	624	.....	.....	.....	.....	1,870	.....	.....
Total	71	4,407	$1,499 51	35	2,259	1,423	684	.....	.....	4	2	$3,270	$125	$15
TOTALS														
Adirondacks	617	50,389	$41,479 53	305	4,679	22,220	11,754	558	1,988	2,596	6,289	$26,265	$20,485	$1,295
Catskills	71	4,407	1,499 51	35	2,259	1,423	684	.....	.....	4	2	3,270	125	15
Total	688	54,796	$42,979 04	340	6,938	23,643	12,438	558	1,988	2,600	6,291	$29,535	$20,610	$1,310

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Forest Fire Losses, 1913, by Causes

CAUSE	Number of fires	Total acreage burned	Acres Private Land Burned				Acres State Land Burned				Value of standing timber destroyed	Value of logs, lumber, etc., destroyed	Value of buildings, fences, etc., destroyed
			Virgin timber	Second growth	Brush	Waste	Virgin timber	Second growth	Brush	Waste			
ADIRONDACKS													
Smokers	206	7,194	158	948	2,541	2,055	150	284	109	949	$7,410	$985	$370
Fishermen	119	13,883	51	2,010	7,252	3,345	30	654	281	260	5,135	905	422
Locomotives	60	207	.....	83	108	12	.....	.....	3	1	415	.....	2
Campers	60	392	12	39	21	5	2	176	58	79	1,655	65	75
Berry pickers	27	723	.....	433	242	45	.....	2	1	.....	815	40	15
Incendiary	28	3,715	22	290	1,907	14	.....	782	700	.....	4,268	18,310	400
Lightning	24	17,254	.....	85	5,281	5,122	376	40	1,350	5,000	4,380	.....	.....
Clearing land	22	388	.....	27	214	97	.....	.....	.....	.....	170	.....	.....
Burning brush	12	361	.....	113	98	147	.....	.....	3	.....	185	.....	.....
Hunters	14	432	50	13	229	39	.....	10	91	.....	217	.....	.....
Burning buildings	6	5,443	2	500	4,125	816	.....	.....	.....	.....	1,025	100	5
Fireworks	3	114	.....	75	39	.....	.....	.....	.....	.....	110	80	.....
Children	5	47	.....	2	44	1	.....	.....	.....	.....	.....	.....	.....
Steam rollers	3	2	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....
Stationary engines	2	10	.....	.....	.....	10	.....	.....	.....	.....	.....	.....	.....
Burning out bee tree	1	2	.....	2	.....	.....	.....	.....	.....	.....	30	.....	.....
Maple sugar camp	1	25	.....	5	15	5	.....	.....	.....	.....	50	.....	6
Unknown	24	247	10	54	103	40	.....	40	.....	.....	400	.....	.....
Total	617	50,389	305	4,679	22,220	11,754	558	1,988	2,596	6,289	$26,265	$20,485	$1,295

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CATSKILLS

Smokers	18	345	20	229	62	34	.....	.....	.....	.....	$1,095	$50	.....
Fishermen	1	1,800	.....	1,000	500	300	.....	.....	.....	.....	500	.....	.....
Locomotives	18	53	.....	35	4	10	.....	.....	4	.....	100	.....	.....
Campers	4	6	.....	1	.....	3	.....	.....	.....	2	10	.....	.....
Berry pickers	4	1,115	.....	360	505	250	.....	.....	.....	.....	425	.....	.....
Incendiary	2	3	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lightning	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clearing land	1	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Burning brush	8	613	.....	356	223	34	.....	.....	.....	.....	780	.....	.....
Burning buildings	2	7	.....	.....	7	.....	.....	.....	.....	.....	.....	.....	.....
Fireworks	2	175	.....	150	25	.....	.....	.....	.....	.....	150	.....	.....
Steam roller	1	3	.....	.....	1	2	.....	.....	.....	.....	5	.....	15
Unknown	8	286	15	125	96	50	.....	.....	.....	.....	105	75	.....
Total	71	4,407	35	2,259	1,423	684	.....	.....	4	2	$3,270	$125	$15

TOTALS

Adirondacks	617	50,389	305	4,679	22,220	11,754	558	1,988	2,596	6,289	$26,265	$20,485	$1,295
Catskills	71	4,407	35	2,259	1,423	684	.....	.....	4	2	3,270	125	15
Total	688	54,796	340	6,938	23,643	12,438	558	1,988	2,600	6,291	$29,535	$20,610	$1,310

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Forest Fire Losses, 1913, *by Causes*

CAUSE	Number of fires	Total acreage burned	Acres Private Land Burned				Acres State Land Burned				Value of standing timber destroyed	Value of logs, lumber, etc., destroyed	Value of buildings, fences, etc., destroyed
			Virgin timber	Second growth	Brush	Waste	Virgin timber	Second growth	Brush	Waste			
ADIRONDACKS													
Smokers	206	7,194	158	948	2,541	2,055	150	284	109	949	$7,410	$985	$370
Fishermen	119	13,883	51	2,010	7,252	3,345	30	654	281	260	5,135	905	422
Locomotives	60	207	.....	83	108	12	.....	.....	3	1	415	.....	2
Campers	60	392	12	39	21	5	2	176	58	79	1,655	65	75
Berry pickers	27	723	.....	433	242	45	.....	2	1	.....	815	40	15
Incendiary	28	3,715	22	290	1,907	14	.....	782	700	.....	4,268	18,310	400
Lightning	24	17,254	.....	85	5,281	5,122	376	40	1,350	5,000	4,380	.....	.....
Clearing land	22	388	.....	27	214	97	.....	.....	.....	.....	170	.....	.....
Burning brush	12	361	.....	113	98	147	.....	.....	3	.....	185	.....	.....
Hunters	14	432	50	13	229	39	.....	10	91	.....	217	.....	.....
Burning buildings	6	5,443	2	500	4,125	816	.....	.....	.....	.....	1,025	100	5
Fireworks	3	114	.....	75	39	.....	.....	.....	.....	.....	110	80	.....
Children	5	47	.....	2	44	1	.....	.....	.....	.....	.....	.....	.....
Steam rollers	3	2	.....	.....	1	1	.....	.....	.....	.....	.....	.....	.....
Stationary engines	2	10	.....	.....	.....	10	.....	.....	.....	.....	.....	.....	.....
Burning out bee tree	1	2	.....	2	.....	.....	.....	.....	.....	.....	30	.....	.....
Maple sugar camp	1	25	.....	5	15	5	.....	.....	.....	.....	50	.....	6
Unknown	24	247	10	54	103	40	.....	40	.....	.....	400	.....	.....
Total	617	50,389	305	4,679	22,220	11,754	558	1,988	2,596	6,289	$26,265	$20,485	$1,295

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CATSKILLS

Smokers	18	345	20	229	62	34	.....	.....	.....	.....	$1,095	$50	.....
Fishermen	1	1,800	.....	1,000	500	300	.....	.....	.....	.....	500	.....	.....
Locomotives	18	53	.....	35	4	10	.....	.....	4	.....	100	.....	.....
Campers	4	6	.....	1	.....	3	.....	.....	.....	2	10	.....	.....
Berry pickers	4	1,115	.....	360	505	250	.....	.....	.....	.....	425	.....	.....
Incendiary	2	3	.....	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lightning	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clearing land	1	1	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Burning brush	8	613	.....	356	223	34	.....	.....	.....	.....	780	.....	.....
Burning buildings	2	7	.....	.....	7	.....	.....	.....	.....	.....	.....	.....	.....
Fireworks	2	175	.....	150	25	.....	.....	.....	.....	.....	150	.....	.....
Steam roller	1	3	.....	.....	1	2	.....	.....	.....	.....	5	.....	15
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TOTALS

Adirondacks	617	50,389	305	4,679	22,220	11,754	558	1,988	2,596	6,289	$26,265	$20,485	$1,295
Catskills	71	4,407	35	2,259	1,423	684	.....	.....	4	2	3,270	125	15
Total	688	54,796	340	6,938	23,643	12,438	558	1,988	2,600	6,291	$29,535	$20,610	$1,310

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Only two of the 688 fires were not promptly gotten under control. Of these, the larger one occurred in Essex county and the smaller one in Lewis county. On Sunday, August 17th, a severe electrical storm swept over the major portion of the Adirondacks; seven forest fires in five different counties were set by lightning during that storm; about noon of that day a dry stub, near the foot of Mt. Macomb, in the town of North Hudson, was struck by lightning and quickly caught fire. The point where this fire originated was approximately five miles from any habitation and in an area which had been burned over in 1903, and subsequently lumbered. The smoke from the fire was detected almost immediately by the observer on Makomis Mountain Station, who notified the local ranger. The fire and lumber slash furnished ideal food of the flames, which, fanned by a strong wind, spread with great rapidity. The ranger quickly summoned the few male residents of that locality and hastened to the fire. It was necessary for them to travel nearly five miles through rough country and well nigh impenetrable fire slash. When they reached the fire they were almost exhausted and it was beyond their control. This fire burned nearly two months, and several hundred men were employed in the endeavor to check its spread. A Commissioner, the Superintendent of State Forests, Assistant Superintendent of State Forests, two district forest rangers and six rangers were present. Owing to the sparsely populated section outside help had to be secured. The Witherbee-Sherman Company of Port Henry sent a large number of men from Mineville. Finch, Pruyn & Company, and other operators supplied their crews of men employed in their lumbering operations in that locality. Nearly every ablebodied citizen in the upper part of the Keene valley was was engaged. Temporary camps were erected, fire lines built, back fires set, and the spread of the fire checked. Owing to the limited amount of help the fire was attacked on the side in which it was advancing on account of the wind, and the most valuable areas received first consideration.

Exaggerated reports were published in regard to the large loss of timber in the vicinity of Elk lake, while, as a matter of fact, only a few acres of second growth, which were burned by a back fire, were damaged in that locality. The valuable hotel property

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Photo Vincent Gilpin.

Forest fire on Round Mountain, Essex County. Dix Mountain in background.

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of the Underwood Club was saved. The fire was confined to the areas previously burned and advanced over this area. It finally endangered valuable property in the vicinity of St. Huberts. The commission, appreciating the situation which might develop had, through the Hon. Peter G. Ten Eyck, representative in Congress, secured an order from President Wilson directing the United States army to assist in this work. The Superintendent of State Forests, who was on the ground, learned that a portion of the Fifth Infantry was on a march through the Adirondacks, immediately communicated with the commandant, and, within a day, three companies of soldiers were upon the ground assisting in the work. Later, three additional companies were detailed to this work. The troops rendered most efficient service in constructing fire lines, setting back fires, and patroling trenches; they were faithful, vigilant and energetic both night and day.

This fire covered approximately 30,000 acres and, in some places, was fully ten miles in length and four miles in width, but there were large areas within this radius which were not burned, and the damage of the fire was confined to about 375 acres of timber land. The accompanying illustration gives a fair idea of the character of the land where the fire occurred; the region, being almost entirely an old fire slash, was an ever present menace, and now that a large portion of the debris has been consumed and fire lines erected, fire protection in that locality has been greatly increased. The most regrettable feature of the fire was the loss of a human life. One of the fire fighters from the mines at Mineville, while digging a trench along the edge of the burned area, was struck by a fallen stub and instantly killed.

The other fire which was not immediately controlled, originated in Lewis county on the night of August 18th, and was caused by a burning building. A heavy wind, which was blowing at the time, scattered the burning embers from the building and the forest was ignited. All available labor was employed to protect the remaining camps and the forest fire escaped. This area, like that in Essex county, had previously been burned by the fires of 1903 and 1908. Two forest rangers with a large force of men were almost immediately on the scene and did all they could to control the situation, but, on account of the high wind and the dry

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condition of the ground cover, the fire spread rapidly. Fire lines were built, but, because of the wind, had to be abandoned and new ones constructed. This fire worked northerly, connecting with another fire in the vicinity of Independence river, which was caused by fishermen. About 5,400 acres were burned over, but fully 95 per cent of this area was nearly worthless. A significant fact in connection with both of these fires is that they were surrounded and under control before any rain fell to subdue them.

WEEKS LAW

The allotment of money to be expended for fire protection in New York State under the provisions of the Weeks Law was increased from four to five thousand dollars for use within the Adirondack and Catskill regions, together with an additional three thousand for use in other parts of the State. The total sum of eight thousand dollars was set aside for use in this State, provided certain conditions were complied with. The grant of five thousand dollars, for the region embraced in the so-called "Fire Towns," was made contingent upon the expenditure of fifty thousand dollars by this Commission within the same region during the calendar year 1913. Inasmuch as the Department spent over one hundred thousand dollars there was no difficulty in securing the five thousand dollars. The money was used to pay the salaries of fourteen observers on mountain stations throughout the fire season.

The appropriation of three thousand dollars, for use outside the forest regions, was made contingent upon the expenditure of an equal amount by the State for fire protection outside the Adirondack and Catskill forest towns. It is unfortunate that this allotment had to lapse because the State made no appropriation for this purpose.

In 1912 an order sent out by the Postmaster-General directed all rural mail carriers to report to the rangers any fires which came to their notice. In the early spring of 1913 lists of all rural mail routes and star routes were sent to the district rangers in order that they might communicate with the postmasters and encourage co-operation along these lines. The result has not been

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startling, but the value of the addition of such a large force of "observers" is undoubtedly considerable. Eleven fires were reported by the rural carriers during the year.

RECOMMENDATIONS

An earnest endeavor has been made to place the fire protective work under a budget system. At the beginning of the season the funds which were available were apportioned for compensation of observers and rangers, traveling expenses, permanent improvements and expense of extinguishing fires. The latter varies from year to year and, therefore, it cannot be accurately determined. The present system of appropriations for fire protection provides a lump sum for this work. A careful analysis of the situation indicates that the fire force should be employed seven months, approximately April 10th to November 10th and, furthermore, that in order to insure sufficient protection one hundred rangers are necessary. The customary compensation for this week is $60 per month; the traveling expenses of a ranger, during the fire season, are approximately $30 per month, therefore, the total expense per month per man is $90, or $9,000 for the entire force, and if employed for the seven months, it would require $63,000 for salaries and expenses. In order to enforce the provisions of the top lopping law, do necessary work in maintaining our telephone system, and protect the State land from trespass, it is necessary to employ thirty rangers during the remaining five months. The traveling expenses for this period will approximate $40 per man, therefore, the expense per month per man would be approximately $100, or for the winter force $3,000 per month, and for the five months period $15,000. The expense of the necessary ranger force is therefore $78,000.

Observers are usually paid $60 per month, with an allowance of $12 for provisions, providing they board themselves on the station, making a cost of $72 per month. This would mean a charge of $4,320 per month, and for the seven months' period $30,240. The total appropriation for the compensation and expenses above mentioned aggregate $108,240. Additional funds are necessary in order to maintain the telephone system, observa-

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tion stations, traveling expenses of the district rangers and railroad fire inspectors, also the establishment of new stations. For these purposes $16,760 should be apportioned, making an entire appropriation of $125,000 for fire protective purposes.

A separate fund of $25,000 should be available for the extraordinary expense incurred in extinguishing fires. The Governor should be given authority to authorize the Comptroller to pay additional sums for such extraordinary expense in case of emergency as existed during the past season. This sum will be but slightly in excess of what has been appropriated for fire protection. The budget which was prepared this year was made on the above lines, but the expense of fighting fire approximated $45,000, nearly one-half of our appropriation, and, it was necessary to lay off the entire ranger force November 1st.

The necessity of an all year force has already been pointed out, but additional difficulties are encountered in that it is impossible to secure the quality of men which we need for $60 per month during a short period each year. Therefore, in order to have a force of efficiency, which we require, it is necessary that a portion of it be employed during the entire year.

The provision of law that railroads properly clear their rights of way has been enforced, and the companies have complied with our requirements. In a similar manner the debris upon the highways has been removed, thereby reducing the fire danger. There are, however, many instances in which there are quantities of slash and other inflammable material immediately adjacent to railroad rights of way or highways, which have not been removed, and which at the present time we have no authority to require the owners to dispose of. The commission should be given discretionary power to compel the owners of such premises, who are so negligent as to leave fire traps of this character, to properly dispose of the debris. It would not act as a hardship upon the person, because whatever efforts he expended would be a protection to his own property.

During the past few years some of the softwood operators, who are lumbering spruce, have introduced a method of bark peeling in the woods. This leaves a large quantity of fine spruce bark chips in the woods which soon become dry and decay very slowly;

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therefore, they are a fire danger for years. This operation has greatly increased the danger from forest fires, both as to their origin and spread. This Commission is, under the statute, charged with the protection of both State and private lands. If conditions of this kind are to be created, it will be impossible to maintain efficient fire protection. The State itself being a large land owner, whose holdings are intermixed with those of private parties, is vitally interested from the standpoint of protection of its property. I believe that steps should be taken to prohibit the practice of peeling spruce bark and leaving the material in the woods as is practised at present. If the land owners desire protection from fire they must not create such inflammable conditions and then expect that fires can be prevented and controlled.

One of the large fires of the season was started by a paper balloon. Similar fires have been caused in other years. Instructions were issued to all mountain observers to remain on their stations the Fourth of July evening to detect such fires. The fire risk caused by these balloons is very great; and their use should be prohibited.

FOREST PRODUCTS

The statute requires that the Superintendent of State Forests shall compile each year statistics showing the amount of lumber manufactured and wood used for commercial purposes from timber grown in the State, and shall report the same to the Commission. Owing to the fact that the compilation of these figures involves a large amount of labor and that many mills operate throughout the year, such information is not received at the office until the beginning of the following year, therefore, the statistics, which are submitted herewith, are for the calendar year 1912.

STATISTICS

The following table indicates the quantities of lumber and pulpwood cut within the State classified by species, also the number of mills reporting particular kinds of lumber:



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Forest Product for 1912

SPECIES	Lumber, Ft., B. M.	Pulpwood, cords.	Number of mills reporting
Spruce	52,061,700	354,793	372
Hemlock	128,440,828	67,439	1,635
Maple	78,103,985	.....	1,338
Pine	78,271,480	217	1,209
Birch	31,906,350	.....	672
Beech	41,478,550	.....	904
Basswood	29,703,865	5,475	1,284
Oak	25,799,050	.....	953
Chestnut	18,139,275	.....	783
Elm	14,766,535	.....	884
Ash	11,130,065	.....	888
Poplar	1,567,910	39,941	216
Hickory	1,386,180	.....	277
Cherry	3,588,555	.....	441
Balsam	237,100	40,815	7
Gum	179,650	.....	2
Cucumber	124,800	.....	12
Butternut	121,785	.....	32
Cedar	77,950	.....	10
Willow	57,984	.....	8
Locust	30,700	.....	9
Tamarack	20,000	.....	5
Black Walnut	9,525	.....	8
Sycamore	2,050	.....	1
Total	517,205,872	508,680	.....

Miscellaneous Materials

Roundwood for alcohol, excelsior, cooperage, kilns, etc.	266,073	cords
Shingles	27,919,250	pieces
Lath	28,187,850	pieces
Heading	15,522,832	pieces
Staves	56,809,770	pieces
Railroad ties	839,670	pieces
Posts	178,585	pieces
Poles	70,088	pieces

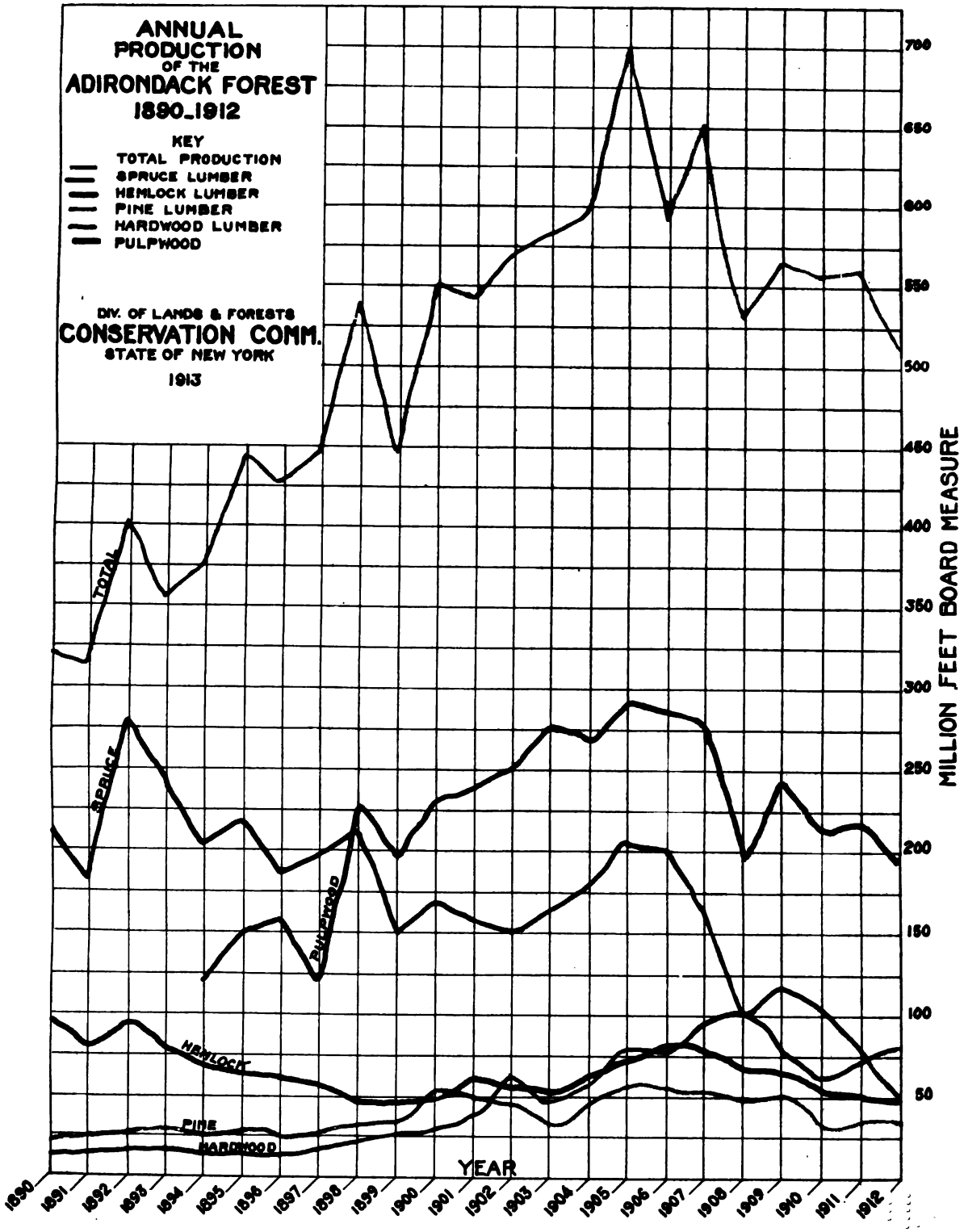
Summary

Lumber	517,205,872	ft. B. M.
Pulpwood (cords equivalent to)	279,265,320	ft. B. M.
Roundwood (cords equivalent to)	146,074,077	ft. B. M.
Grand total	942,545,269	ft. B. M.

SOURCE OF SUPPLY

There are in this State approximately twelve million acres of land upon which there is some kind of forest growth, only about one-half of which contains merchantable material. The best avail-

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able information indicates that the entire stumpage is somewhat less than forty billion feet board measure. The annual cut is approximately one billion feet per year. The annual wood growth, exclusive of the forest preserve, is probably not more than three hundred million feet, while the consumption by our citizens of wood for various purposes is conservatively estimated at five billion feet or fifteen times such growth.

Statistics in regard to the lumber cut have been published from year to year. While they are of much value to persons engaged in the industry, the people in general have not appreciated their full meaning. It is impossible to remove from our forests year after year several times as much material as is grown without seriously reducing our timber resources, and eventually resulting in their exhaustion.

The resources of this State are so great and of such a character that the prevailing opinion is they are inexhaustible. Not less than two million three hundred thousand acres, or 10 per cent of the area of this State, is idle. If this area were reforested and the twelve million acres of woodlands placed under proper forest management, we would not only be able to produce all of the wood material which we now need, or what a greatly increased population will require, but, furthermore, instead of sending to Canada and many states several million dollars every year for wood material, this vast sum of money would be secured by our own land owners. Such a sum would represent almost a clear gain, because the lands upon which this material would be produced are to-day largely held at a loss, for the reason that there are necessary carrying expenses with almost no income.

The people must look at our forests in a different light. The great heritage which our forefathers found has been practically exploited. Nature cannot, unaided, longer be given the management and control of such a large proportion of our State or be depended upon to supply us with the necessary wood materials which we demand. Forestry means growing wood crops. It is similar to agriculture, in that lands are used for production; the agriculturist raises food crops, while the forester produces wood crops. It is just as essential that the forces of nature be directed, in one case as in the other. The principles are almost identical and the ordinary land owners can master them in their

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application to their forest lands as well as to their agricultural areas.

The exhaustion of our forests is further shown by the fact that the annual lumber cut is rapidly falling off. There are many towns that once flourished but are now abandoned because the forests have been harvested. A half century ago Albany was the largest lumber market of the nation, but the area wherein that great business was conducted is now chiefly covered with a growth of brush. The rank of this State as a lumber producer has greatly changed. In 1850 it was first, while to-day it is twenty-third in the list of states. The change was gradual:

1850. First.
1860. Second.
1870. Third.
1880. Fourth.
1890. Seventh.
1900. Seventeenth.
1910. Twenty-second.
1912. Twenty-third.

The accompanying table, showing comparison of forest products 1908–12, indicates how this reduction is still taking place:

Comparison of Forest Product 1908–1912

YEAR	Spruce lumber, ft., B. M.	Spruce pulp, cords	Pine, ft., B. M.	Hemlock, ft., B. M.	Total cut of State, ft., B. M.
1908.....	107,936,537	360,891	113,263,132	194,210,327	1,226,754,365
1909.....	127,864,000	269,397	104,658,500	162,783,500	1,091,164,710
1910.....	113,357,500	392,680	72,753,000	150,659,000	927,933,291
1911.....	81,841,173	403,983	79,189,615	132,941,386	972,596,685
1912.....	52,061,700	354,793	78,271,480	128,440,828	942,545,269

REFORESTING

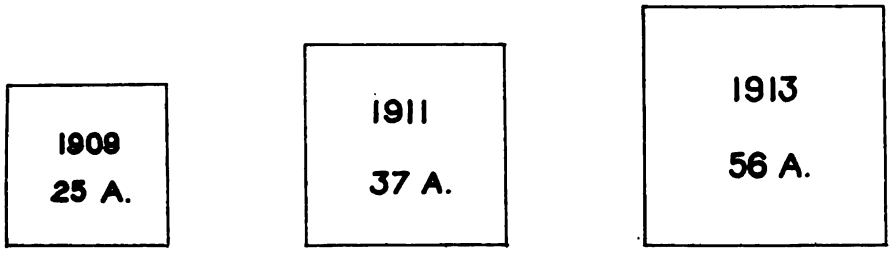
The reforesting work consists in the production of trees in the various nurseries; reforesting land of the State in the Forest Preserve; the selling of trees for forest planting, to private owners, together with giving advice in regard to this work; and supplying trees to various State institutions for similar purposes.

NURSERIES

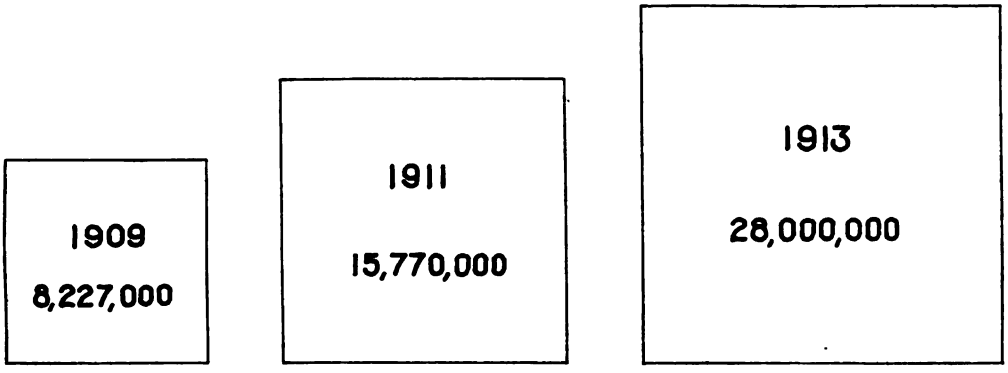
One new nursery was added to those operated during the preceding year. Some of the nurseries have been increased in area.

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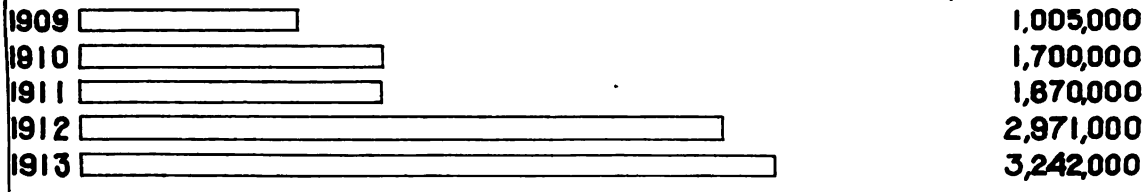
REFORESTING



COMPARATIVE AREA OF NURSERIES



CAPACITY OF NURSERIES



SALES OF TREES TO PRIVATE OWNERS



DENUDED LANDS IN FOREST PRESERVE REFORESTED



IDLE LANDS IN ENTIRE STATE REFORESTED

DIV. OF LANDS & FORESTS
CONSERVATION COMMISSION
STATE OF NEW YORK
1914

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and a total of fifty acres is now used. The two nurseries at Saranac Inn have been retained under cover crops in order to sufficiently enrich the soil. This plan of rotation of crops for the purpose of fertilization by means of leguminous crops is being applied to all of our nurseries.

During the past year a small nursery established by the State College of Forestry at Syracuse, was taken over by this commission. This nursery is operated the same as the other nurseries, except that it is supervised by a member of the faculty of the college. The college is benefited, in that the students receive practical experience and instruction in nursery work.

A radical change has been made in spacing of transplants in the nurseries. It has been the practice to plant the trees in rows running crosswise in beds six feet wide and usually fifty feet long. The trees were set three inches apart in the row and the rows six inches apart. Under the new system the small beds have been abandoned and the trees are set in large blocks and planted one and one-half inches apart in the row, while the distance between the rows has been widened from six to nine inches. This gives greater chance for root development, facilitates cultivation; and, owing to the fact that more trees can be grown upon the same area, the cost of weeding is reduced. During the year important developments have been made in the line of hardwood seedling production. The demand for Carolina poplar cuttings is very steadily increasing. A large number of these cuttings were set in our nurseries, and next year, for the first time, we will be able to supply rooted cuttings which will be far more successful. Our nurseries now contain quantities of white ash, tulip, red oak, and black locust seedlings. The increase in seed beds which we made two or three years ago is now commencing to materially increase our output. As a result, we will be able to supply practically all of the demands for stock. The large increase in supply will consist of three-year-old white pine transplants, three-year-old red pine transplants and three-year-old Norway spruce transplants.

SALE OF TREES

The accompanying table shows the number of trees which has been sold from 1908, the beginning of this work, to date, classi-

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Private Parties and State Institutions

COUNTY	1908	1909	1910	1911	1912		1913		Total
					Spring	Fall	Spring	Fall	
Albany	.....	14,650	23,000	23,000	7,750	.....	25,200	2,050	95,850
Alleghany	.....	2,000	5,200	4,500	3,500	.....	.....	.....	15,200
Broome	.....	3,000	1,500	3,250	58,200	6,000	16,000	.....	87,950
Cattaraugus	1,200	1,080	4,500	31,250	85,500	.....	28,500	3,000	155,030
Cayuga	.....	.....	400	1,000	10,900	.....	350	.....	12,650
Chautauqua	.....	7,150	2,400	6,250	14,175	.....	24,000	.....	53,975
Chemung	.....	3,000	8,750	17,000	68,200	.....	14,000	2,000	112,950
Chenango	.....	8,000	34,350	41,900	30,200	4,000	28,050	.....	146,500
Clinton	.....	11,000	26,000	30,400	173,750	25,000	165,500	.....	431,650
Columbia	.....	4,000	3,500	7,800	19,000	.....	211,100	1,500	246,900
Cortland	.....	.....	.....	200	100	.....	1,000	.....	1,300
Delaware	1,000	76,575	37,000	24,600	24,800	.....	22,600	18,800	205,375
Dutchess	.....	1,000	13,500	68,250	131,900	3,000	132,000	.....	349,650
Erie	.....	2,250	8,150	7,500	16,300	.....	6,000	2,000	42,200
Essex	2,700	99,000	71,200	54,800	199,150	9,500	163,300	28,600	628,250
Franklin	.....	36,600	200,200	60,850	240,300	1,600	150,500	12,500	702,550
Fulton	10,000	67,500	160,500	74,500	106,100	23,000	136,700	42,000	620,300
Genesee	.....	.....	.....	3,500	8,200	.....	5,500	.....	17,200
Greene	.....	2,750	2,250	3,500	800	1,000	1,000	.....	11,300
Hamilton	.....	33,000	60,500	9,000	4,000	.....	390,600	3,000	500,100
Herkimer	.....	9,100	99,500	130,900	82,175	.....	14,750	21,000	357,425
Jefferson	.....	.....	19,250	6,000	11,950	.....	5,000	1,000	43,200
Kings	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lewis	.....	18,000	69,000	45,700	66,750	.....	45,400	1,000	245,850
Livingston	.....	20,000	12,000	68,000	33,600	3,000	193,000	.....	329,600
Madison	.....	1,250	10,000	13,000	4,000	.....	36,800	1,000	66,050
Monroe	.....	50	14,400	4,000	10,900	5,000	19,500	500	54,350
Montgomery	.....	1,000	.....	4,700	5,500	.....	3,500	.....	14,700
Nassau	.....	66,400	41,500	53,000	46,800	11,200	63,600	7,100	289,600
New York	.....	.....	.....	2,000	4,000	.....	2,000	.....	8,000
Niagara	.....	.....	.....	1,000	6,750	.....	5,300	.....	13,050
Oneida	.....	51,800	130,800	77,700	134,750	6,000	102,400	36,400	539,850
Onondaga	.....	.....	9,800	29,500	59,360	1,000	22,500	.....	122,160
Ontario	.....	3,000	4,500	4,000	103,200	.....	38,000	.....	152,700
Orange	.....	3,100	6,500	27,200	166,850	.....	145,000	.....	348,650
Orleans	.....	.....	.....	.....	.....	.....	.....	.....	.....

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Oswego	.....	230,700	32,800	41,000	50,350	9,000	17,600	12,800		394,250
Otsego	.....	74,300	66,000	59,400	88,300	2,050	77,900	7,000		374,900
Putnam	.....	600	.....	7,250	12,000	.....	4,500	12,000		36,350
Queens	.....	.....	1,000	.....	7,000	.....	1,000	.....		9,000
Rensselaer	.....	21,000	10,000	21,500	38,950	.....	263,700	.....		355,650
Richmond	.....	.....	.....	.....	4,000	.....	7,000	3,000		14,000
Rockland	.....	2,000	4,500	23,500	63,050	9,000	28,250	23,000		153,300
St. Lawrence	.....	79,000	104,500	103,000	176,350	4,000	95,900	.....		570,750
Saratoga	.....	11,000	106,500	128,500	192,900	9,000	27,500	2,000		479,400
Schenectady	.....	1,000	2,000	1,600	2,250	.....	1,000	1,000		8,850
Schoharie	.....	2,003	4,000	.....	3,000	.....	1,000	.....		10,000
Schuyler	.....	3,850	.....	.....	500	.....	.....	.....		4,350
Seneca	.....	1,500	2,000	3,000	2,000	.....	5,000	4,000		17,500
Steuben	.....	6,200	8,000	6,000	2,450	.....	44,000	.....		66,650
Suffolk	.....	10,800	2,500	32,300	58,175	2,000	70,750	23,000		199,525
Sullivan	.....	3,000	16,950	12,220	10,425	.....	4,500	.....		47,095
Tioga	.....	11,200	.....	2,500	14,100	.....	6,900	.....		34,700
Tompkins	.....	.....	4,750	1,450	41,000	320	53,500	.....		101,220
Ulster	.....	3,000	33,500	14,600	16,500	21,200	28,300	4,500		121,600
Warren	.....	24,000	165,150	126,000	101,700	.....	262,500	12,500		691,850
Washington	.....	32,000	5,000	2,500	75,200	.....	60,000	.....		174,700
Wayne	.....	3,000	3,500	11,000	57,000	.....	6,000	.....		80,500
Westchester	.....	18,000	43,700	127,000	336,780	5,500	420,350	45,003		997,330
Wyoming	.....	10,000	1,000	5,400	22,250	.....	3,000	.....		42,650
Yates	.....	500	500	.....	1,250	.....	4,000	.....		6,250
Total	.....	1,095,405	1,700,000	1,660,470	3,316,890	101,520	3,712,800	353,450		12,014,635
		25,100								

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fied by counties. The sales show a rapid increase and would have been more had our supply been sufficient to meet the demands. The grand total of sales to date is 12,014,635 trees. This number is sufficient to reforest approximately twelve thousand acres. It is interesting to note the large number of trees which have been planted in Westchester county, in many instances upon land which has been bought at a high price, but is in reality strict forest land. The demands of southeastern New York and Long Island, where there are large areas which should be reforested and where already large quantities are being purchased, will necessitate the establishment of a nursery in that locality. On account of the fact that our supply was scarcely more than equal to the demand, no particular effort was made to extend the sale of trees the past year.

A large paper company purchased a quantity of Carolina poplar cuttings and gave them to land owners in the vicinity of their mill. Their purpose is to encourage the use of idle land for wood production, a profit to the owners, and a supply of raw material for their plant.

STATE LAND

In the Forest Preserve, about seventy thousand trees were added to the Mountain Pond Plantation, near Paul Smiths; six thousand trees were planted near Johnsburgh in Warren county on lot 40, township 11, Totten and Crossfield's Purchase. There are in the Forest Preserve approximately one hundred and twenty thousand acres of land, which will not be under forest cover unless planted. This land cannot serve its purpose as Forest Preserve unless placed under forest cover. Planting was inaugurated in 1902, and at present three thousand four hundred acres have been reforested. Sufficient appropriations should be made to continue this work, not only on account of the indirect benefits which would be derived, but because these lands, if reforested, would yield to the State a substantial revenue and furnish necessary wood material.

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Courtesy Education Department.

STATE NURSERY AT LAKE CLEAR JUNCTION.
Beds in foreground contain first-year seedlings.

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The following figures show the increase in nursery production and extension of reforesting throughout the State:

YEAR	Number of nurseries	Area of nurseries	Capacity of nurseries	Trees sold to private owners	Trees planted on State lands	Number of orders
1909.....	5	25 acres....	8,227,000	1,005,000	90,000	189
1910.....	5	30 acres....	11,763,000	1,700,000	.....	313
1911.....	6	37 acres....	15,769,500	1,670,370	120,000	410
1912.....	8	49 acres....	19,468,000	2,970,910	1,346,500	524
1913.....	9	56 acres....	28,000,000	3,242,200	76,000	478

STATE FOREST PROBLEMS

Various questions in regard to forestry have been presented during the year. Numerous requests have been received asking for advice in handling forest land. As far as help was available assistance has been given providing the owner would pay the necessary expenses. The forest lands of the State institutions have been examined and excellent progress made in regard to their management. Lumbering operations have been instituted upon the land at Dannemora prison. More detailed information in regard to this matter will be included in another part of this report.

TREE DISEASES

No tree disease has given any special trouble during the past year. The nurseries have been free from fungus troubles and the trees produced were all in a healthy condition.

The customary inspections of the plantations made in 1909 with German white pines have been continued. In most instances the disease was not found to have increased to any extent. Discovery was made at Geneva, N. Y., of a large white pine infested with the blister rust. The same is the only instance which has come to our attention where the disease has fully developed.

Through co-operation with the United States Department of Agriculture, a study was made in southeastern New York, particularly in the lower Hudson valley, relative to the utilization of chestnut timber which had been injured by the chestnut bark disease.

STATE INSTITUTIONS

The plans which were prepared for the management of the forest lands at approximately forty of the various state institutions

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have been adopted and are being successfully executed by the various managers. The required cutting is being done scientifically, the necessary wood supply is secured, and the quality of the remaining growth greatly improved. In many instances wastes of various kinds have been stopped, and the operations are being carried on at a reduced cost.

Planting of idle areas and underplanting in cases where it is necessary to reinforce the present growth have been carried on. The various institutions have, during the past year, been supplied with 804,000 trees which they have planted on their lands. Trees for this purpose are furnished without charge.

We have endeavored to co-operate with the institutions, not only in the handling of their forest lands, but also in preserving their shade trees, and making plans to secure the necessary stock which they will require for ornamental work.

Work of this character has not only resulted in increased benefits to the institutions, but such operations have educational effects, in that there is a practical demonstration of the application of forestry in these localities, which has its value in interesting private land owners in order that they may apply similar methods to their woodlands. At the same time, experimental plots have been established and information is being carefully compiled as to the results which are being secured.

The law creating the socalled site commission, enacted by the last Legislature, made a representative of this commission one of its members. Various matters of investigation in connection with their work have been conducted and the facts presented.

The character and extent of the forest areas vary with the different institutions. At Dannemora, in connection with Clinton Prison, there is the largest area of forest lands under the charge of any State institution. During the past year important developments have taken place in handling these lands. On account of the extent and value of this work, the operation will be described in detail.

MANAGEMENT OF LANDS AT CLINTON PRISON

A large area of land in the western part of Clinton county has been acquired for the use of Clinton Prison. This area at

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FOREST LANDS OF TROY WATER WORKS.
Trees too thick to produce proper development. Thinning necessary.



FOREST LANDS OF TROY WATER WORKS.
Showing proper thinnings made in forest shown in above illustration.

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the time of its acquisition was largely forest land, purchased to secure a supply of charcoal for the iron manufacturing industry, which was then conducted by the prison. These lands lie on the northeastern slope of the Adirondacks; a large portion of the tract is somewhat mountainous, and its topography is typical of the Adirondack foothills. The tract consists of thirteen thousand five hundred acres, nearly all of which is situated in three large parcels.

The forest growth consists of a mixture of spruce with beech, birch and maple. There are large areas which had been burned over by fire; and, in some instances, have been restocked with growths of young poplar.

The boundaries of the premises were not fully determined; the lands were subject to trespass, and were in some cases occupied. A search for the exterior lines was made and in most instances the bounds were located. The various trespasses which occurred were measured, value computed, evidence secured, the facts submitted to the Attorney-General, and actions brought. The western boundary of this tract has been in dispute for some years. A very careful analysis of the history of the land grants, subsequent conveyances, and various surveys has been made, and as a result we determined that the western line, as claimed by adjacent owners, was not correct, and an extended survey is being made at this time to correctly locate this boundary. This dispute involves the ownership of approximately two thousand acres of land, from a portion of which the timber has been cut recently. The result of this survey will be a large trespass which will also be referred to the Attorney-General for action.

Owing to the large area of forest land which required attention, the then superintendent of prisons employed a forester who has been carrying out the plans formulated by this Commission.

The question of management and utilization of the forest growth upon this tract is of great importance. A reconnaissance of the tract showed that there were large quantities of fire killed and down timber which must be removed. The amount was so great that the State could not handle it itself. Furthermore, owing to the fact that nearly all of this had been killed by the fires of 1908,

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immediate removal was imperative, because the material was rapidly decaying. Various questions of a legal nature were submitted to the Attorney-General and he decided that the State, under the law, could sell dead and down timber. The superintendent of prisons advertised the material, received bids and awarded contracts. The estimate showed that there were approximately seventeen thousand cords of dead softwood timber; about four thousand cords were estimated to be nonmerchantable at the time of the examination, and at least three thousand cords more would deteriorate to such an extent that they would not be salable after the present year. The remainder, approximately ten thousand cords, it was believed could be profitably removed. This material the Superintendent of Prisons sold, and it is now being marketed by the purchasers under the inspection of their forester.

The removal of this material will not only produce a large net revenue to the State, but, at the same time, will remove a large quantity of debris which would always be a source of fire danger and imperil the remaining forest growth.

There were inserted in the contract various provisions in regard to the lumbering of these lands, which will be of interest to others in preparing similar agreements:

> *First.* The party of the second part covenants and agrees to purchase all the merchantable dead timber as hereinafter provided and to remove the same from the premises herein described, except such timber heretofore cut on the hereinafter described property and sold to A. W. Baker under contract dated the 23rd day of January, 1913, reference being had thereto for greater particularity.
>
> *Second.* The timber to be removed as described in the foregoing paragraph is to be taken only from the land within the following descriptions:
>
> > "Lands situate on the south side or slope of Ellenburg Mountain, the north boundary of said land being a certain blazed line following generally the course of the summit or top of said mountain and extending south to the limits of the State land, all located in the town of Ellenburg, Clinton county, N. Y."

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Photo. E. W. Blue.

DANNEMORA PRISON TRACT, 1912.

Condition of a part showing effect of fire, wind and poor management Timber, under forest working plan, has been utilized and fire danger removed.



Photo. E. W. Blue.

TIMBER REMOVED FROM DANNEMORA TRACT.

Illustration shows a portion of the 12,000 cords secured from the slashes.

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Third. It is further covenanted and agreed that the timber covered by this contract and to be purchased by the party of the second part is to be measured on the basis of sound timber, and logs, scaled straight and sound. All timber is to be measured by the 19-inch standard rule, and will be computed at the rate of three 19-inch standards per cord. Material shipped by railroad may, in the discretion of the foreman of lumbering of the Prison Department, be measured after loaded on the cars. Timber otherwise removed is to be measured upon the ground. Down timber is to be cut first whenever possible. The height of stumps shall not exceed the diameter at cutting point, except by consent of said foreman of lumbering. All trees cut down or from which a stick is taken are to be lopped. All merchantable material shall be taken, and merchantable material shall mean any log eight feet or over in length, reasonably straight and sound and of the following top dimensions: Tops are to be cut down to at least four inches in sound timber. Wherever doze has penetrated to an average depth of not greater than one inch, tops are to be cut to a sound limit of six inches. If doze has penetrated to an average depth of more than one inch, tops are to be cut to a limit of eight inches diameter of sound wood; hardwood cut down to ten inches in diameter of sound wood.

Fourth. The party of the first part agrees that dead timber may be used by the party of the second part in the construction of all necessary camps, roads, bridges and skidways, but that no such dead timber shall be used for this purpose, except upon the written consent of the said foreman of lumbering. And the party of the second part may occupy the lands herein described for the purpose of lumbering and may build thereon mills, camps, roads and bridges and remove said mills, camps and bridges on the completion of this contract.

Fifth. The said party of the second part hereby covenants and agrees to pay for the timber, to be cut and removed by the terms of this contract, at the following prices:

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$3.30 per cord for all softwood and the sum of $1.50 per cord for all hardwood; the same to be paid as follows:

One-half of the above mentioned price per cord to be paid for the timber when cut and scaled in the woods, the balance to be paid on removal from skidways.

Sixth. The party of the second part shall upon the execution and the delivery of this contract execute and deliver to the party of the first part a good and sufficient bond of indemnity in the sum of six thousand dollars ($6,000), as security for the faithful performance by the said party of the second part of all the covenants and agreements on his part contained in this contract. The security of such bond of indemnity shall be a properly authorized surety corporation, doing business as such in this State, and said bond must have the acceptance and approval of the party of the first part thereto.

Seventh. It is further covenanted and agreed that the agreement herein contained shall be binding upon and inure to the benefit of the successors and assigns of the parties hereto respectively.

Eighth. No timber of any kind is to be removed from the land hereinabove described, except such as is designated by the foreman of lumbering of the Prison Department, as dead timber, and his designation of such timber to be so removed and covered by this contract is to be final and conclusive upon the party of the second part, and said party of the second part is to remove and pay for according to the terms of this contract all the merchantable, dead timber designated as such by said foreman of lumbering of the Prison Department, upon the lands herein described.

Ninth. It is further agreed that in the event there is a misunderstanding or dispute concerning the description of land covered by this contract, the foreman of lumbering of the Prison Department shall be the arbitrator and his determination as to the area covered by the contract shall be binding and conclusive upon the party of the second part.

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Courtesy Department of Education.

STATE NURSERY AT LAKE CLEAR JUNCTION.
Norway Spruce — Two-year Seedlings in foreground.

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Tenth. The work to be done and the removal of the timmer hereinabove mentioned on the part of the party of the second part shall be commenced promptly and progress with diligence and in the order in which the foreman of lumbering of the Prison Department shall direct and his direction in the manner of removing the timber, the carrying out of the terms of this contract and as to all things connected therewith shall be final and conclusive.

Eleventh. It is further covenanted and agreed that this contract is to continue in duration until April 1, 1914, and that all of the timber which is to be removed by the party of the second part shall be cut and paid for before that time. At least 20 per cent of the merchantable dead timber on the land described shall be cut and ready for removal by the party of the second part before October 15, 1913.

Twelfth. It is further mutually understood and agreed that nothing herein contained shall be construed to prevent the party of the first part through his servants or employees from entering upon the premises herein described at any time during the term of this agreement and cutting or causing to be cut upon the said lands and removing therefrom any growing green timber which he may require for the use of Clinton Prison and the State Hospital at Dannemora.

Thirteenth. It is further covenanted and agreed that nothing herein contained shall be construed to interfere with the reasonable right and clear intentions of the privileges hertofore extended to A. W. Baker under the terms of his contract hereinbefore referred to either as to the location of mill sites, or the removal of the timber specified under the terms of the said contract.

Fourteenth. The party of the second part further agrees that they will not assign, transfer or otherwise dispose of this agreement, or their right, title or interest therein, or their power to execute the same without the consent in writing of the party of the first part, or any moneys which are to become due and payable to them under this contract to any person, company, or corporation without the previous consent in writing of the party of the first part and until such

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consent in writing shall have been given, no claim or demand shall exist in favor of any person, company or corporation to any of the moneys to be paid by the party of the first part on account of the provisions of this agreement in favor of any person, company or corporation, except the party of the second part.

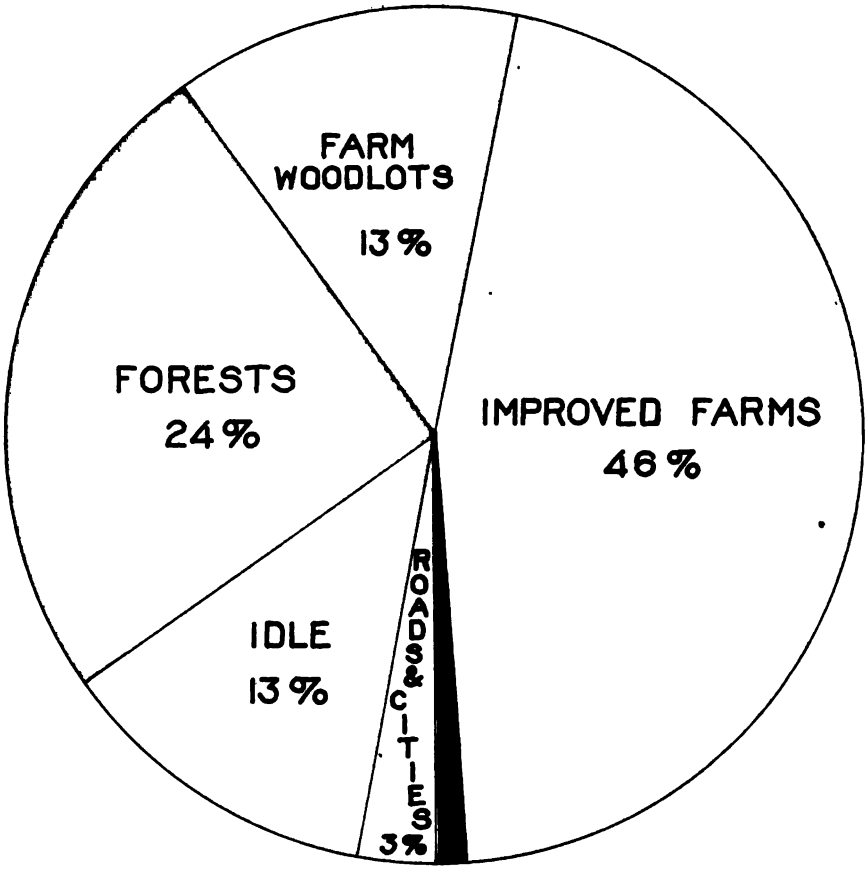
Fifteenth. The party of the second part agrees to indemnify the party of the first part and save him harmless from all costs, damages or expenses of any kind by reason of any claim or claims which may be made or injuries to persons or property which shall have resulted from any wrong, negligence or want of care or skill on the part of the party of the second part, their agents or servants, or either of them, or their subcontractors in the execution of this agreement, or anything in any way connected therewith or incidental thereto including any claim of other contractors that the work or anything pertaining thereto has been so managed or conducted as to impede, wrong or injure them.

While the plans for operation were being formulated and the various questions of law were being determined by the Attorney-General, the reforestation of the denuded land on this tract was being conducted. During the past two years two hundred and sixty thousand trees have been planted with prison labor. The first planting of this nature was an experiment. At that time twenty-five convicts were taken from the prison and were cared for in a camp in the fields where the operations were conducted, and and the planting progressed without any trouble. The prisoners set out one hundred and thirteen thousand trees at a total cost of nineteen cents per thousand. The work was so well done that 95 per cent of the trees are living and making a thrifty growth. The State, owning large areas of land similarly located and within reasonable distance of the prison, could profitably utilize this labor in extending the reforesting of the Forest Preserve.

STATE WIDE FIRE LAW

Your attention has already been called to the necessity of extending the provisions of the fire law in order that forests outside

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AREA
OF
NEW YORK STATE
CLASSIFIED ACCORDING TO
PRESENT USE
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DIV. OF LANDS & FORESTS
CONSERVATION COMMISSION
STATE OF NEW YORK

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the Adirondack and Catskill regions may be properly protected. The area now under protection does not include more than one-half of the forest area of the State. The forests in the outlying areas are equally and, in some respects, more important than those which are now protected.

A law should be enacted to give the commission discretion in establishing fire districts in these outlying forest sections. The present law gives the town supervisors various powers and duties, which, in some cases, these supervisors endeavor to perform. The question of forest fires is not a town matter. Town lines are not a barrier to their spread, neither are the forest areas defined by such political divisions. An official hesitates to incur necessary expense, and a fire, that can be extinguished cheaply in one town, is, in some instances, allowed to develop such headway that great damage and expense are incurred in another town. The location of property or business interests is many times such that the townspeople are not particularly interested in the more isolated forest portions of their town and, therefore, do not give the matter of fires proper attention. The result of the fire protective system, which has been inaugurated in our large forest regions, indicates that the mountain observation station is a necessary adjunct, and, in order to secure proper efficiency, such stations must be established and maintained. This, at once, becomes a matter which affects more than one town. If the State cannot make appropriations for this work, a law should be enacted enabling various towns mutually interested to combine and form a fire protective district at their own expense.

The provisions of the Weeks Law agreement with this State provide that the Federal Government will expend three thousand dollars for fire protection in these outlying forest regions or such parts thereof as the State will appropriate an equal sum for this purpose.

EXTENSION

The demand for literature in regard to forestry has rapidly increased the past year. Several hundred bulletins issued by

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this Commission in regard to reforesting, general forest conditions of the State, growing basket willow, taxation of forest land, and care of shade trees, have been distributed. A bulletin, giving detailed instructions in regard to handling woodlots, has been prepared and is in the hands of the printer. A publication, giving general information in regard to forest fires, has been issued and is transmitted as a part of this report. A small leaflet in regard to woodlots was prepared by one of our foresters, printed by the Department of Agriculture and distributed at the Farmers' Institute. Twenty thousand copies of a small circular calling the attention of the people to the danger of forest fires have been printed and distributed.

Lectures on forestry have been given at a large number of Farmers' Institutes, before clubs, societies, and at various meetings.

This Commission has also co-operated with the State Education Department and assisted that department in the preparation of an illustrated lecture on forestry. Several large diagrams illustrating various phases of our work have been prepared and exhibited. They are of such general interest that they are included in this report.

TAXATION OF FOREST LANDS

About five years ago, an attempt was made to secure legislation along the line of more favorable assessment and taxation of forest lands in this State. A bill was drafted, introduced and passed the Legislature, but was vetoed by the Governor. In 1912, three laws were enacted — two of these were amendments to the general Tax Law, while the third was a section of the Conservation Law. A synopsis of these various laws will be found in the accompanying table. These laws have proven cumbersome. There are so many provisions that the applicants have been confused and failed to enter their lands. Since they became effective, nineteen applications pursuant to their provisions have been filed in this office, and eight of them have been

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granted. The number filed and granted under each section is as follows:

Section.	Filed.	Granted.
Section 89, Conservation Law...	4	2
Section 16, Tax Law.....	6	4
Section 17, Tax Law.....	9	2
Total	19	8

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Synopsis of Forest Taxation Laws

	Conservation Reforesting Law (Chapter 444, Laws of 1912) Sec. 89	General Tax Law relative to Reforesting (Chapter 249, Laws of 1912) Sec. 16	General Tax Law relative to Woodlots (Chapter 363, Laws of 1912) Sec. 17
Law applies.	1. Lands unsuited for agriculture. 2. Lands to be planted or underplanted. 3. Areas of 5 acres and upwards.... 4. Lands reforested under an agreement with Conservation Commission. 5. Lands assessed at not more than $5.00 per acre or lands in a tax district where similar lands are not assessed at a higher rate. 6. Any distance from cities or villages.	1. Any land. 2. Lands planted or underplanted since April 10, 1909. 3. Not less than 1 nor more than 100 acres. 4. No previous agreement required.. 5. No limit as to value of land..... 6. Must be situated not less than 20 miles from a city of the first class, 10 miles from a city of the second class, 5 miles from a city of the third class and one mile from an incorporated village.	1. Lands maintained as woodlots. 2. Lands with natural or planted growths. 3. Not exceeding 50 acres. 4. Lands placed under forest management by agreement. 5. No limit as to value of land. 6. Must not be situated within 20 miles of a city of the first class, 10 miles of a city of the second class, 5 miles of a city of the third class or one mile of an incorporated village.
Required of applicant...	1. Apply to Conservation Commission on Forestry Form 68 to have land classified. 2. Make written agreement to reforest. 3. Reforest within one year after date of agreement.	1. No application necessary..... 2. No agreement..... 3. That land be reforested since April 10, 1909.	1. Apply to Conservation Commission on Forestry Form 62 to have land classified. 2. Accept plan of forest management. 3. Planting may be necessary in some cases.

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	4. File proof of planting on Forestry Form 72, with Conservation Commission. 5. Not necessary to file proof of planting with local assessors. 6. Use land for forestry purposes....	4. File proof of planting on Forestry Form 66 with the Conservation Commission. 5. File proof of planting on Forestry Form 65 with the local assessors. 6. Use land for forestry purposes....	4. No proof required by Conservation Commission. 5. No proof required by assessors. 6. Use land as woodlot.
Benefits derived.....	1. Land classified for purposes of taxation. 2. Property is assessed for period of 35 years at a value not exceeding assessed valuation of land at time of planting. 3. All tree growth exempt from assessment for 35 years. 4. No reduction after 35 years.	1. Lands not classified..... 2. Total exemption of assessment for 35 years on any land planted with at least 800 trees per acre. Or if underplanted with 300 trees per acre assessed at 50 per cent of value of land exclusive of timber. 3. All tree growth exempt from assessment for 35 years or more. 4. Forest growth exempt from assessment after 35-year period if forest is not cut.	1. Lands classified for purposes of taxation. 2. Assessment at value of land only exclusive of tree growth, but in no case higher than $10.00 per acre. 3. All tree growth exempt from assessment for period of agreement. 4. Benefit continues as long as plan is carried out.
Management of property.	1. Must be used exclusively for forestry purposes. 2. Grazing must be prohibited..... 3. Owner can cut timber when he desires.	1. Must be used exclusively for forestry purposes. 2. Grazing must be prohibited..... 3. No restrictions as to manner of cutting after 35-year period.	1. Must be used exclusively for purposes of woodlot in accordance with the plan. 2. Grazing must be prohibited. 3. Cutting to be done in accordance with plan.
Tax at time of cutting...	1. No cutting tax.....	1. Tax of 5 per cent on estimated stumpage value of material removed.	1. Tax of 5 per cent of value based on actual measurement of the material removed.

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These statutes have endeavored to classify lands upon the basis of their present assessed valuation, use, adaptability, area, value and distance from villages and cities. The question as to whether or not a piece of land is best adapted for forest purposes is not governed by limitations of distance from centers of population, valuation or area. The deciding factor in determining whether or not a piece of land should come within the provisions of such a law is whether or not it is best suited for forestry purposes. This is a question of fact which can be determined by an examination.

In agriculture, only the land itself, and the improvements, are assessed. In forest areas the land and growing timber are both assessed. The timber cannot be construed as an improvement and bears the same relationship to its land as does the agricultural crop to the farm. The difference is the length of time that is required for the crop to mature.

It, therefore follows, that as a matter of equity, the growing crop should not be annually assessed, but that the land alone should be liable to annual taxation.

The various provisions of distance from cities were incorporated into the law to prevent putting under its provisions lands near villages or cities held for speculative purposes, and thereby evading taxes. If the land is assessed at its actual value, rather than upon an exemption theory, such limitations are unnecessary because the assessment would be the same whether included under the provisions of the statute or not. The provision of law in regard to area was an attempt to prevent large areas from being excepted from assessment, thereby materially reducing the assessed valuation of a tax district. The qualification as to present assessment and value of land was for the purpose of excluding agricultural lands and areas held for speculative purposes.

In framing a Forest Taxation Law the following provisions should be incorporated:

1. That the growing of forests results in a public benefit and protects and conserves the water supply.

2. Any area five (5) acres or upwards can be admitted if the conditions hereinafter named are present.

3. That only land best devoted to tree growth, that is, true forest land be considered.

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4. That the owner apply to the Conservation Commission, in manner and form prescribed, to have such lands examined and classified.

5. That upon receipt of such application an examination shall be made by a competent forester for the purpose of determining

a. If the land is true forest land.

b. Proper method to be pursued in handling the same.

6. The provisions should be sufficiently broad to permit entering idle lands that are to be reforested, or lands already under forest cover.

7. That the plan prepared by the Commission shall be submitted to the owner for his acceptance.

8. If the plan is accepted by the owner that the same shall be recorded in the office of the Clerk of the county in which the land is located, and that it shall be a covenant running with the land.

9. That the Commission shall have authority to make certified copies of such plan and transmit a copy to the Clerk of the county in which the land is located; that it shall be the duty of such clerk to notify the assessors, and furthermore, that it shall be the duty of the assessors to examine the records in the Town Clerk's office to ascertain if any such plans are so filed.

10. That the land so described shall be assessed at the value of the land only. This value shall be the same as the value of other land of the same character and similarly situated in the same tax district.

11. That the tree growth thereon, if any, shall be separately assessed and not subject to any taxes except a cutting tax.

12. Whenever the wood crop is harvested, except that which is cut for domestic use and consumption, a cutting tax of five per-centum shall be paid, of the actual stumpage value.

13. That the responsibility for the collection of this tax shall be upon the town authorities, and that the owner shall file a sworn statement of the amount of timber, and pay the cutting tax to the supervisor before removing the same from the place where it is cut.

14. That a provision shall be made for annulment of this agreement, provided the owner shall pay to the town the amount of

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taxes, together with interest equivalent to the amount which he would have paid had the land not been so entered, together with refunding to the State the expense of preparing a working plan.

15. That the Conservation Commission shall have authority to make necessary rules and regulations in order to make effective the statute.

16. That any land owner may submit a plan of management which, if satisfactory to the Commission, shall be accepted.

17. Provisions should also be made for penalty for any person who violates the agreement, and that the Conservation Commission or town supervisor shall have authority to maintain an action to secure enforcement of the statute.

18. That the tax law be amended providing a separate column for the assessment of such lands, that the value of the land be entered in one column and the value of the forest growth in the other column.

19. Whenever such lands are entitled to the benefits of this section the town assessors shall write opposite the description of the premises the fact that the lands are entitled to these benefits pursuant to the provisions of the statute.

In some states the law provides for arbitrary assessed valuation of land. This might lead to abuse and evasion of taxes. The proposed plan of assessing at the value of denuded land of the same quality and location in the same tax district is more equitable. If any owner is dissatisfied with his assessment he has redress for a hearing, as provided by the General Tax Law.

The assessment-roll provides a place for the valuation of the forest growth. This acts as a check upon the local assessors and prevents them raising the assessment upon the land, providing the same is placed under the provisions of this act. The timber is exempt from taxation as long as the plan is carried out, except that there is a cutting tax of 5 per cent. upon the valuation of the stumpage (excepting material cut for domestic use), at the time it is harvested. The burden of such collection is, in the first instance, placed upon the land owner, in that he is required to file a sworn statement and pay the necessary taxes to the supervisor. Failure to comply with these provisions and the enforcement of the law in this respect is left to the town officer.

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The owner has a guarantee that only the land value will be assessed; and that no higher valuation can be placed upon it, than upon other lands of the same character in the same tax district.

The provisions are State wide. There is no necessity for the State's financing the tax payments, as contemplated in other proposed tax laws.

RESERVATIONS

There are two reservations, namely the St. Lawrence and Cuba, the lands of which are under the jurisdiction of this division. The following reports are submitted in regard to these reservations.

ST. LAWRENCE

The parks of this reservation have been added to by the purchase of Long Point on Chaumont Bay in Jefferson county. This parcel of land consists of eleven and sixty-three hundreds acres and was purchased from Thomas Emery and others, the purchase price being $1,500.

The dock on Canoe Point was very badly wrecked last spring; about sixty feet of the outer end was carried away and is now about two miles down the river anchored to the north shore of Wells Island. Temporary repairs were made to that portion of the dock which remains in position and the sunken portion buoyed as a matter of precaution. There is much navigation of waters in this locality by small power boats, and, unless measures are taken to reconstruct the dock, damage to small craft may occur. The dock is used very much and should be reconstructed. We regret to say that funds are not available for the work. The docks at Watterson Point and Mary Island need rebuilding from the water line up, and some minor repairs are needed to the other docks. All of the pavilions and outhouses are very much in need of painting.

CUBA

An act of the Legislature, chapter 738 of the Laws of 1912, placed "The Cuba or Oil Creek Reservoir" under the care and control of this Commission to be preserved and maintained for reservoir purposes for the benefit and profit of the people of the State. This statute further provided that the lands were not to

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be sold but that a caretaker was to be employed, and the Commission was empowered to make rules and regulations for the use and protection of the property. The Commission was further authorized to plot the lands; prepare leases for a term of not to exceed five years, upon such terms and conditions as it saw fit; and also sell water rights. The spirit of the law was that this reservation was to be maintained as a resort; that the people who had erected cottages upon the land should be entitled to leases, and that the administration of the property should be in charge of this Commission.

Cuba Lake is located in Allegany and Cattaraugus counties, about seventeen miles north of the Pennsylvania line. It is about two miles long and covers 501 acres. There is only one principal inlet which drains an area of about twenty square miles. The entire watershed which drains into the lake is twenty-four square miles. The lake is an artificial body of water caused by the erection of a dam across Oil Creek. The dam is about one-quarter of a mile long and sixty feet high.

Cuba lake, or what was originally called Oil Creek Reservoir, was built as a feeder for the Genesee Valley canal. Construction was started about 1852 and completed about 1858. When completed the area of the lake was about 480 acres. In 1864 the water level was raised approximately four feet when an additional appropriation of 106 acres was made. In 1872 the level was again raised about six feet and there was a further acquisition of 120 acres. The purpose of such enlargement was to furnish additional water for canal use during the summer months. The canal was abandoned in 1878, and after some years the prism of the canal was sold for railroad purposes. The reservoir and adjacent property were retained by the State and the water remained at the high point for approximately twenty years. About the year 1889, at the time of the Johnstown flood, the residents of the village of Cuba became alarmed for fear that the dam was not in a safe condition and the spillway was at that time lowered seven and one-half feet. The water has since remained at that level. The area of State land not flooded at present is 221 acres.

When the reservoir was constructed, the land was taken by a permanent appropriation, the amount acquired being determined

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F. A. Gaylord, Photo.

COTTAGES ON STATE LAND AT CUBA LAKE.

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by the water level together with an allowance of three feet above such level for times of high water. A traverse was run approximating this contour. When the dam was raised, subsequent appropriations were made in the same way. The present boundary of the State land appropriated follows a contour about ten and one-half feet above the present water level. The width of the State property not flooded depends upon the slope of the shore. In some places, it is very narrow, but where the shores are less abrupt this strip widens out; and along the main inlet of the reservoir the State property extends back one and one-quarter miles from the present shore line.

The first work in connection with the administration of this property was to locate the boundaries. A set of thirteen maps, which showed three original traverse lines, was found in the Barge canal office, western division, at Rochester; descriptions of the lands appropriated were found in the county clerk's office of the respective counties; a book of field notes in the Division Engineer's Office at Rochester furnished notes of the appropriation line of two parcels on the northerly side of the lake. This data furnished two starting points for survey. The boundary of the State's property is made up of 186 lines, varying in length from less than one chain to thirteen chains. Aside from the appropriation for the lake property, other appropriations were made for the feeder channel from the dam to the canal, and along the outlet.

The best use of this property has been under discussion for some time. The question of the safety of the dam is of first importance. Our experts have reported that the dam is in a safe condition, but in need of slight repair. There is a possibility of water storage and generation of power. The use of this reservation for recreation purposes has already become established. There are already erected upon State land 150 cottages, while there is room for at least 125 more. Cuba lake is the only large body of water in that section of the State. There are, within easy distance, several cities and towns, a portion of the population of which is using these premises for the summer season. The law authorizes the Commission to plot the lands, and make leases for a period of not exceeding five years. The leases are now being

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prepared by the legal bureau and plans to put this work into effect are under way.

The small appropriation which was made was not sufficient to complete the required survey. The land adjacent to the lake has been located and monumented. The land along the feeder canal has not yet been surveyed, and a small appropriation should be made for this purpose. There are areas of land best suited for farming and not desirable for camping sites, which should be sold. In some places, the cottages are very near together. This condition is bad, both from the sanitary standpoint and from that of fire protection. If approximately ten cottages were removed, it would result in greatly relieving the situation. The matter of sanitation must be carefully considered, and a method provided for the disposal of garbage and refuse.

Classification of the area is as follows:

Cultivated	89.0	acres
Pastured	64.3	acres
Highway	11.4	acres
Unused	29.4	acres
Occupied by cottages	18.8	acres
Cemetery	.1	acre
Miscellaneous	9.1	acres
Total land area	221.1	acres
Total water area	501	acres
Grand total	723.1	acres

Respectfully submitted,

C. R. PETTIS,

Superintendent of State Forests.

December 10, 1913.

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SUPPLEMENT TO ANNUAL REPORT

OF

FORESTRY BUREAU

SPECIAL REPORT ON FOREST FIRES

BY

ASSISTANT SUPERINTENDENT OF STATE FORESTS

[127]

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Photo by Dr. E. W. Keffer, Philadelphia, Pa.

Observer on Mount Morris Observation Station, Franklin County. Note view of surrounding country.

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SPECIAL REPORT ON FOREST FIRES

INTRODUCTION

The damage done by forest fires in the past has reached enormous proportions, but, until the last few years, it has not received the attention which so large a destructive agency deserves. To be sure, some of the worst conflagrations, such as those in the Adirondacks in 1903 and 1908, and those in the Northwest in 1910, have aroused considerable newspaper comment; but even then, the public interest has been more concerned with the threatened loss of life and possible damage to camps or village buildings, than with the enormous destruction of timber and consequent damage to the productivity of the forest. The growing scarcity of timber caused the lessons so forcibly taught by these big fires to be heeded by many, and the years 1909, 1910, 1911, 1912 and 1913 have seen many needed improvements made in methods of fire protection for forest regions.

The importance of this subject has been realized by thinking men in this country for many years. Progress in forest fire legislation has gone hand and hand with the advance of forestry. This is only natural, for the practice of true forestry is impossible without the establishment of an adequate system of fire protection. In fact, this has in most cases been the first forestry measure adopted by the Federal Forest Service in its administration of the National Forests, and by the various states which have inaugurated forest policies. New York was the first State to formulate and enact practical laws for dealing with the protection of forests from fire. Lumbermen and land owners, also, have formed associations and devised methods for rendering their holdings as safe as possible from the fire danger. It is a well recognized fact that protection from fire is the first step which needs to be taken in the establishment of a scientific system for the management of timberlands. Without it, the application of even the most elementary principles of forestry is useless.

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New York State profited by her experience in the devastating fires of 1908, and completely reorganized her fire protection system the following year. The new system will be considered in detail in these pages. The increase in size and efficiency of the fire fighting force has done much to lessen the damage done by forest fires within the last three years. Legislation, tending to increase the efficiency of the fire fighting force, has been secured. A number of years ago the indiscriminate setting of fires to clear land caused more forest fires than any other agency. Now, however, the law requires that no burning shall be done within the "fire towns"* of the Forest Preserve Counties, except under permit from the Conservation Commission. The clause compelling the "lopping" of the tops of all coniferous trees cut within the same territory decreases the fire danger on cut-over lands. These are but two examples of numerous laws which have been passed, and which have helped the State improve her system of fire protection. That there is still room for further improvement, without which our forest regions invite the enormous damage to property and possible loss of life attendant upon a severe forest fire, will be shown in the following pages.

The number of fires which are caused every year by carelessness and avoidable accidents is appalling. The oft-repeated cautions which appear on fire notices posted in conspicuous places throughout the woods, are having some effect, but there are still hundreds of campers who, either through ignorance of the possible results of a forest fire, or through a criminal disregard of the rights and safety of others, fail to take the simplest precautions to prevent the spreading of their camp-fires. If this report shall cause a half dozen persons to desist from building their camp-fires against a fallen log, which might spread fire, or to hold a cigar stub or match until it is out, or until it can be thrown into a pool of water, it will have justified its existence.

Few people have a definite idea of the vast areas of land in the forest regions of the State which have been burned over within recent years. The bad fires of the two years 1903 and 1908 burned over nearly a million acres of forest land within the Catskill and Adirondack Preserve Counties.

* The forest towns in the central portion of the Adirondack and Catskill regions, where the State maintains a fire protective organization.

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The success of all reforesting operations depends primarily on fire protection. Several million trees are being planted in New York State each year, both by the State and by private land owners. The importance of reforestation is indeed great, but, until fire protection is secured, planting is merely gambling with the elements instead of being a sure business investment.

HISTORICAL

It is not within the scope of this report to present a detailed history of the forest fires of the past. Brief mention will be made of the worst ones and the causes will be analyzed so far as available records permit. The State of New York has, since 1891, kept a more or less accurate account of the fires which have occurred in the Forest Preserve. Frequent mention has been made, in articles treating of forest fires, of the famous Miramichi fire in New Brunswick in 1825, of the fire of Hinckley, Mich., in 1894 and of the terrible fire in Idaho in 1910. The contemporary newspaper accounts of the latter catastrophes give one an idea of the awful possibilities of a forest fire when conditions are suitable for its devolpment into a conflagration which is beyond the power of man to control. The Hinckley and Idaho disasters are regrettable, not so much for the enormous loss of property which they entailed, but for the fearful loss of life.

We need not go outside our own State to find appalling instances of destruction by forest fires. The years 1899, 1903 and 1908 saw hundreds of thousands of acres burned over in the Adirondacks. The fire at Long Lake West in 1908 burned over some 30,000 acres in a day and did in the neighborhood of $130,000 worth of damage. If the "fire train" had not been on hand to succor the residents of the little hamlet at Long Lake West, the loss of life would have been great. Had the train arrived fifteen minutes after it did, not a soul in the place would have escaped alive.

The years 1899 and 1903 were marked by little or no rainfall throughout the spring months. After the snow disappeared and exposed the dry leaves and litter on the ground to the hot rays of the spring sun, conditions were ideal for fires until the early summer, when the new foliage came out. In 1908, the drought did

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not come until well along in the summer; then, dry weather prevailed until the end of October. The worst fires occurred in September and October.

The area burned over in the years 1903 and 1908 alone was about 832,000 acres, or 25 per cent. of the total of the total area of the Adirondack park.

KINDS OF FOREST FIRES

For a proper consideration of forest fires, it is necessary to divide them into three distinct classes, namely, (1) surface fires, (2) ground fires, and (3) crown fires. The damage caused by fires depends largely upon the kind of fire. The timber growth and debris on the land and the atmospheric conditions prevailing at the time the fire originates, are important factors in influencing the progress of the fire. For instance, a crown fire is practically unknown in the farming regions of the State, where forest growth occurs mainly in the form of comparatively small woodlots, containing principally hardwood trees, and practically surrounded by open fields.

There are many factors which combine to influence the character of a forest fire when it has once been started. Most important of all is the condition of the ground and of the atmosphere as regards moisture content. In New York State, the seasons of the year when danger from forest fires is greatest, are usually during the early spring, immediately after the snow has gone off the ground and before vegetation has become green, and in the fall after the leaves have fallen from the trees and the vegetation on the ground has become dry. A few days of sunshine then renders this dry and dead vegetable material highly inflammable and only a spark is needed to kindle the fire.

The amount of inflammable material on the ground is also an important factor in determining the severity and extent of forest fires. In this factor may be found the reason for the large amount of attention which has been given by lumbermen and foresters in this country, during recent years, to devising practical methods for removing the slash left on the ground after lumbering. Of course the amount of this inflammable material depends entirely

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A FIRE SLASH.
Showing effects of a severe ground fire in the Adirondacks.

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upon the character of the lumbering operation. It may vary from the few scattered branches left after cutting a few trees for fuel from a woodlot, to the large mass of limbs and tree tops left after a hardwood and softwood lumbering operation in the forest regions.

SURFACE FIRES

A surface fire is a fire which, when it burns over an area of forest, merely runs in the leaves and ground litter, and which does not run up into the tops of the trees to any appreciable extent, or does not burn down deep into the duff, humus or ground. The surface fire is the easiest of all fires to control, since its flames seldom rise to any great height from the ground, nor do they give out such intense heat, as do the more disastrous crown fires. In many parts of New York State, especially in the farming sections, forest fires seldom develop beyond surface fires. This class of fires is common in the forest regions of the Adirondacks and Catskills during the very early spring, late fall or the summer when conditions are not exceptionally dry, and the fire burns over an area, scorching only the leaves and ground litter.

GROUND FIRES

During periods of drought and when there is an abundance of humus or duff on the forest floor, surface fires often develop into what are called ground fires. In regions of dense forests, such as are found in the Adirondack region, the layer of humus upon the ground is often several feet in depth. Under the above conditions, ground fires burn into this humus and destroy all vegetable matter down to the mineral soil or bed rock. These fires are extremely hard to extinguish, for it is well nigh impossible to get at them, or if they are accessible, to carry sufficient water to extinguish them. Cases are on record in which fires of this class have smouldered for weeks, defying all efforts to extinguish them.

CROWN FIRES

As has been mentioned above, crown fires can result only in regions where there is a dense forest growth, and where the kind of timber, the amount of inflammable material upon the ground, the dryness of the atmosphere, and the severity of the wind, com-

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bine to make possible an extensive conflagration. The crown fires owe their origin either to surface fires or ground fires. Ground or surface fires may be burning over an area of forest where the topography is varied and do but little damage until they come to the top of a ridge or knoll where the wind can reach them to better advantage, when the increased draft thus afforded them, causes them to run up the tree trunks and communicate fire to the crowns or tops of the trees. Forests of coniferous trees are especially prone to suffer from fires of this kind. The resinous character of the trees affords excellent fuel for fire, and when the fire has reached the crowns, the increased draft which it receives causes it to travel with extreme rapidity. All the disastrous forest fires of history have developed into crown fires before they have done the greater part of their damage. It is difficult to estimate the speed with which a crown fire travels, but there is no doubt that these fires have frequently attained a speed of several miles an hour.

DAMAGE DONE BY FIRES

The casual observer seldom realizes the entire extent of the damage which is done by a forest fire. Everyone will note the trees which have been blackened and killed outright, but few stop to realize the loss of young growth or reproduction, the injury to the soil, and the indirect damage to the larger trees. This brings up the question of the kinds of damage, which may be roughly classified as "Direct" and "Indirect."

DIRECT DAMAGE

Under the head of direct damage we consider the trees which have been entirely consumed, those which have been killed, but not destroyed, those which have been badly burned around the roots, etc. Crown fires are the only fires which actually consume large trees, but in the case of a severe crown fire, it is no unusual occurrence to have a large part of both the hard and soft-wood timber on an area completely destroyed. It is often exceedingly difficult to tell just which trees have been killed by fire. Some retain a spark of vitality for a year or two after the fire, and then die, as a direct result of being scorched. While it is

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true that large trees are seldom consumed by any except crown fires, great numbers of trees are killed by having their roots burned and the soil which supports them destroyed by severe ground fires. These fires so weaken the roots of the trees that they fail to give sufficient support and at the first sign of heavy wind, the tree topples over. In the dense forests of the Adirondack region and in certain other parts of the State, there is practically no mineral soil covering the bed rock. In these cases a severe ground fire burns away the accumulation of ground litter, humus, or so-called "muck," which constitutes the soil, until there is nothing left to sustain the tree.

Ground fires are extremely destructive in killing young growth or reproduction, that is, the stand of saplings and seedlings which are to form the body of the future forest crop. The smaller trees are either entirely consumed, or at least killed, by a ground fire. Even a surface fire may so weaken their powers of resistance, that they will succumb within a short time.

INDIRECT DAMAGE

This brings us to a consideration of the question of injury which is indirectly due to forest fires. It is a well recognized fact that when trees have been weakened by any cause, they are more liable to suffer from the attacks of insects or of disease germs than when they are growing thriftily. Forest fires, in burning over an area, leave bad fire scars on the trunks of many trees which are not actually consumed. These scars permit the ingress of fungi and insects, which injure and frequently destroy the tree. Damage done to timber by fungi which have secured ingress through fire scars at the base of the tree is exceedingly hard to appraise, especially in hardwood timber. New growth may cover the scar completely, leaving little or no indication on the surface of the defects within. Tree species vary widely in their power of resistance to fire, and this variance must be studied if one would hope to understand the degree of damage suffered by the forest.

Another form of indirect damage due to fire is the destruction of the proper relationship between the number of trees and the area upon which they stand, namely, in the reduction of the density of the stand, which is consequent upon the elimination of the

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fire killed trees. The letting in of a large amount of sunlight, which is thus occasioned, results in the appearance on the ground, after the fire, of a large number of weeds, which cause a serious defect in the composition of the forest.

The damage to the soil is, in a sense, a direct damage, but on the other hand, its effects are not at first sight clearly visible, and for that reason this class of damage is included under this heading. When the soil is entirely burned, as has been the case in many parts of the Adirondack and Catskill forests, the forest itself is, of necessity, destroyed. Thus, the value of the forest, as a protection to the watershed, is lost. This value is due in a large degree to the deep porous mass of decaying vegetable matter which goes to make up the upper stratum of soil in the forest. This layer absorbs water readily and gives it up reluctantly, so that it is the ideal cover for regulating the water flow.

When the soil has been destroyed, it is not possible to reforest the denuded area until after a new soil has been formed. The processes of nature are not rapid in the case of a work like this and it may require hundreds of years to replace the soil which has been destroyed by a single fire in a few hours.

One of the greatest losses resulting from forest fires is the loss in wages due to the destruction of a large amount of timber. An expenditure of from fifteen to twenty dollars per thousand board feet is required to convert standing timber into lumber, and market it. The greater part of this money is spent for labor. Therefore, when timber is destroyed, the loss to labor and to the community at large must be taken into consideration. When we consider the millions of dollars invested in the lumber industry, and the thousands of persons employed, the magnitude of the loss becomes at once apparent. Furthermore, when timber is destroyed, the available supply is reduced, and the price of lumber is bound to rise accordingly.

CAUSES OF FOREST FIRES

It is apparent that any intelligent scheme for protecting forests from fire must be based on a knowledge (1) of the characteristics of forest fires, (2) of the character of the area to be protected, and

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R Gooding, Photo.

DAMAGE DONE BY RAILROAD FIRES.

The denuded mountain-sides in the background of this picture were caused by repeated fires which originated from the railroad.

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(3) of the causes of forest fires. It is axiomatic that the aim of any organization which has to do with the suppression of fires must be to prevent the occurrence of fires and to promptly extinguish any which may occur. Any plan of campaign which is laid out must be developed as a result of a careful consideration of the causes of fires.

RAILROADS .

For many years railroads have caused more fires than any other agency. Up to within recent years it has been the practice of most of the railroad companies to operate locomotives within the forest region of the State, as well as in other places, without taking proper measures to prevent the escape of sparks and live coals. A large proportion of the damage done by fires within the State can be directly traced to fires which started from sparks or coals thrown out by railroad locomotives. One needs only to observe conditions along the railroad, to appreciate the extent of this loss.

If the right of way of a railroad is not properly cleared, at least once a year, it soon accumulates a large amount of inflammable material. A few dry days, then a spark from the stack of a locomotive or hot coals from the ash pans, and a fire is kindled, which, when once ablaze, will extend readily to the adjacent forest land.

The first and most important matter to consider in reducing the fire danger along railroad lines, is the prevention of the escape of sparks and coals from coal burning locomotives. These are various methods of accomplishing this. One is to place suitable guards around the openings in the ash pan of the locomotive, and a suitable spark arrester, which may be either of netting or of perforated steel, in the front end of the locomotive to prevent the escape of sparks from the smoke stack. The only absolutely safe method, however, is to substitute oil for coal as fuel on locomotives in operation during the seasons of the year when the fire danger is great. The clearing of the right-of-way at frequent intervals prevents the accumulation of a large amount of inflammable material, and in that manner renders doubly secure the protection obtained by the proper equipment of the locomotive.

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CLEARING LAND

Clearing land has always been a prolific source of forest fires. A number of years ago, when fires were set indiscriminately for this purpose within the forest regions, large areas of timberland were burned over every year by careless persons who did not take proper precautions to prevent the escape of their fires to the surrounding forest. Fires to clear land are usually spoken of as fallow fires or "burning fallow." It is the custom to do a large amount of this burning in the spring and fall, and too much cannot be said of the need for caution in looking after such fires. The present Conservation Law provides that fires for this purpose in the forest "fire towns" may be set only under permit secured from representatives of the Conservation Commission. The forest rangers of the Commission are given to understand that they will be held responsible for any damage which may be done by fires set under permit granted by them. In this way a high degree of protection from serious fires from this cause has been secured.

Outside of the Adirondack and Catskill regions, the Conservation Commission does not have jurisdiction over the setting of fires for clearing land. In most cases, if a farmer suffers his fallow fire to escape through carelessness, it is his own woodland which will be damaged. For this reason it is only common sense that he should use the greatest care to prevent any accident. Close observance of the following rules would prevent damage from fires of this class.

1. See that the area to be burned is separated from your woodland by a fire line. (There may be a road or other natural barrier, which will save the labor of constructing a special fire line.)
2. Do not set the fire unless you have sufficient help present to control it.
3. Do not set fires during dry weather or during heavy winds, or at any time when conditions make the fire situation dangerous.
4. Avoid burning over large areas at a time, in order that you may at all times have the fire under full control.
5. Do not burn brush so close to standing timber that the trees might be injured by the heat of the fire.
6. Do not leave the fire until you are absolutely sure that it has been entirely extinguished.

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A Bad Fire Trap.
Showing large amount of inflammable material on right of way of a logging railroad.

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7. If you have found ideal conditions for burning in the morning, but, as the sun gets higher, conditions are too dry for safe burning, do not continue the work; wait until rain comes, or do the work in the evening when there is less likelihood of the fire getting beyond your control.

CAMPERS

The number of forest fires which result from the carelessness, and it is only fair to call it, the criminal negligence of persons who use the woods for recreation, is appalling. It is such an easy matter to exercise proper caution in building camp fires and extinguishing them after they are no longer needed, that it is inconceivable why so many people fail to take suitable precautions. Section 100 of the present Conservation Law provides that " Every person who starts a camp – or other fire upon, or in the vicinity of, forest or woodland, for cooking, obtaining warmth or any industrial purpose, shall, before lighting the same, clear the ground of all branches, brushwood, dry leaves or other combustible material within a radius of ten feet from the fire, and shall carefully extinguish the fire before quitting the place.

"Any person violating any of the provisions of this section shall be deemed guilty of a misdemeanor punishable by a fine of not less than ten or more than twenty-five dollars and costs of prosecution, or by imprisonment in the county jail for not more than ninety days, or by both such fine and imprisonment."

Fire notices are posted at frequent intervals along the roads and trails principally used by campers in the forest preserve regions of the State. These notices contain cautions concerning the care of camp fires. In spite of this fact, every spring hundreds of fishermen, who use the woods, build small fires either for insect smudges, for warmth, or for cooking purposes, and go way and leave those fires without properly extinguishing them. It seems as if these people did not take account of the fact that they might wish to fish in the same place the following year, and that if the forest was burned over, the streams would dry up, the fish would soon disappear, and the place would lose all its attractive features. In the fall the hunters visit the woods and they, too, are decidedly careless with their fires. The danger from this source is enhanced

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by the fact that both the fishermen in the spring and the hunters in the fall are in the woods during the most dangerous fire seasons.

Any citizen may camp temporarily on State land in the Adirondacks or Catskills, on Lake George and along the St. Lawrence river. No written permit is required. In return for the privilege of using the State land, it is expected that persons availing themselves of the privilege, will at all times exercise the greatest care with fires. All fires, except for cooking, warmth and insect smudges, are absolutely prohibited. Campers will be held strictly responsible for any damage or injury to the forest which may result from their carelessness or neglect.

A careful observance of the following rules will result in fewer fires:

1. Don't build a camp fire without choosing a suitable place and clearing a sufficient space of all inflammable material.
2. Don't build a fire against a log or where the duff or humus is thick.
3. Don't make a fire any larger than is necessary.
4. Don't leave a camp fire until you are sure that it is absolutely extinguished.
5. Don't drop lighted matches.
6. Don't lay down or throw down cigars or cigarettes in places where they might start fires.

SMOKERS

Every year large numbers of fires are reported as having been set by smokers, who either threw down lighted matches where they started fires, or threw away cigar or cigarette stubs before they were cold The fires started as a result of the carelessness of campers, usually originate within the forest. The carelessness of smokers, however, is responsible for fires everywhere. Lighted matches or cigars dropped by the side of the road, or tossed from a wagon or automobile while passing along the road, may start fires which will ultimately do great damage to the forest. Every person should bear this in mind when traveling in the vicinity of forest or woodland. Hunters, fishermen and campers should

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exercise great care to see that they do not set fires by ashes from pipes, cigars or cigarettes which they may be smoking while in the woods.

LIGHTNING

Lightning is responsible for a large number of fires every year During the year 1911, especially, fires caused by this agency were very numerous. Sixty-five were reported in the Forest Preserve during that year. An article on "The Relation of Lightning to Forest Fires" has recently been published by the United States Forest Service. The purpose of the studies made as a basis for this bulletin was to discover what relation, if any, there was between tree species and liability to damage from lightning. The result of the investigations conducted by the writer of this bulletin seems to be, that the predominating species within a given forest region is the one which will suffer most from lightning. In this State, the pines and hemlocks are more often struck by lightning than other species.

There is no way of preventing fires from this source. Fires started by lightning frequently originate on mountain peaks and ridges in inaccessible localities. Although we cannot prevent these fires, the system of mountain observation stations, which has been established by the State, is of invaluable service in discovering them after they have started.

INCENDIARISM

There are, in every community, certain persons of low moral character, who, out of pure maliciousness or with an idea of of avenging fancied wrongs, are ready to set fire to forest or woodland, in order to cause a loss to the owner of the property. These persons fail to see that as members of a community which derives its living from the forests, they themselves are bound to suffer from the destruction of the forests. Fortunately, there are but few of these persons in any community, and the fires which are set by them seldom do a large amount of damage.

Incendiarism is one of the causes of fire which is extremely hard to combat, but a vigilant patrol and ceaseless watchfulness on the part of mountain station observers tends to minimize the damage which can be done by this class of fires.

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BERRY PICKERS

In some regions of the State it has been customary in the past to burn over land for the sake of improving the blueberry crop. This has resulted in the destruction of large areas of forest. By burning over the blueberry lands, the future crop of berries may be improved, but at the same time all young trees and oftentimes many mature trees are destroyed, so that this practice is indefensible within forest regions. During the year 1911, three persons were indicted for setting fires for this purpose, and the indictment of these persons has served as a wholesome lesson.

MISCELLANEOUS CAUSES

Space do not permit us to go into the large number of other agencies which cause forest fires. Hunters sometimes burn over certain areas to improve the crop of briars and grasses which furnish feed for the deer. Children playing with matches, or smoking out small animals, have been responsible for several fires. The sparks from logging engines and saw mills have also done their share toward increasing the number. Every summer there are people who go into the woods and locate so-called "bee trees," whereupon they proceed to smoke out the bees in order to obtain the honey. Only too often the fire, which was built to smoke out the bees, is left to spread over a large area of forest and do untold damage. Burning buildings, situated in the immediate vicinity of forest land, frequently send out sparks which give rise to extensive forest fires.

While the utmost efforts have been made in this State since 1891 to ascertain the causes of all forest fires which have occurred within the forest preserve, it has been impossible to determine the responsibility for every fire. Each year a large number of fires are reported, "cause unknown."

The accompanying table shows the number of fires, classified according to causes, which have occurred in the State Forest Preserve in 23 years, during the period from 1891 to 1913 inclusive.

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Fires in Adirondack and Catskill Regions, 1891 *to* 1912

Year	Number fires	Acreage burned	Damage	Causes																		
				Carelessness	Fishermen	Berry pickers	Smokers	Hunters	Railroads	Clearing land	Incendiary	Campers	Lighting	Burning buildings	Children	Logging engines	Sawmills	Bee hunters	Blasting	Unknown
1891	65	13,789	$19,105	4	5	....	2	1	7	18	3	2	....	... 1	1	....	1	... 1	....	21
1892	33	1,030	610	....	1	... 1	....	....	8	18	1	....	....	....	....	....	....	....	....	3
1893	13	8,790	9,710	....	... 6	... 1	....	... 1	2	5	2	... 3	....	....	....	....	....	....	....	3
1894	50	17,093	32,041	....	2	... 1	... 3	1 2	10	14	4	5	....	....	....	....	....	... 1	....	11
1895	36	2,448	4,300	... 2	....	1	... 3	2	4	14	....	4	....	....	....	....	....	....	....	7
1896	116	29,817	35,640	4	... 6	4	1	5	9	41	... 6	4	1	... 2	... 3	....	....	... 1	....	41
1897	98	26,187	26,941	....	6	1	1	4	3	11	8	... 1	....	....	....	....	....	....	....	58
1898	98	9,648	7,530	... 3	6	1	1	5	16	28	1	47	9	... 5	... 7	... 1	....	... 3	....	36
1899	322	51,545	60,121	7	15	30	11	62	24	31	9	6	3	1	1	....	....	1	....	62
1900	127	14,893	16,499	6	5	2	6	8	21	19	13	....	....	....	....	....	....	....	....	35
1901	....	7,780	4,000	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1902	....	21,356	9,150	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
1903	643	464,189	846,082	6	47	3	23	7	121	89	6	6	1	6	1	....	....	....	1	14
1904	101	2,627	6,500	3	8	....	14	9	21	20	4	4	1	....	2	....	....	....	....	31
1905	126	4,795	3,895	9	2	2	18	10	31	8	5	2	....	6	1	1	....	....	1	51
1906	142	12,500	8,335	1	14	2	14	8	20	9	11	6	....	1	4	....	....	....	....	53
1907	198	5,653	13,923	6	10	6	5	2	48	21	5	8	1	3	....	....	....	....	2	210
1908	605	368,072	802,135	15	19	14	34	100	89	21	48	27	9	1	6	....	1	....	2	74
1909	307	11,759	23,125	28	14	31	25	19	45	38	21	47	4	3	5	....	....	1	1	10
1910	277	12,680	17,803	12	23	3	39	37	60	24	22	23	11	9	2	2	....	....	....	74
1911	596	37,909	43,664	40	35	38	72	10	109	35	37	29	65	1	1	....	1	....	1	122
1912	383	6,990	11,340	13	37	7	59	10	93	17	20	32	34	5	....	1	....	2	1	48
1913	688	54,796	51,455	....	120	31	224	14	78	43	30	64	26	8	7	....	....	1	....	40
Totals	1,186,366		$2,253,913																	

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PROTECTIVE AND PREVENTIVE MEASURES

The work of fighting fires is of the utmost importance; but if we can keep those fires from starting in the first place, we have accomplished much more, in that we have not only saved the expense of fire fighting, but have also prevented the damage which would have been done by the fire. Bearing in mind the possible causes of forest fires in a given region, we must devise a scheme of protection consistent with the money available for expenditure for such a purpose, and aiming especially to reduce the danger from fires arising from the known causes. It is not sufficient to provide a patrol force to cover the area under protection. A system must be worked out in minute detail to cover all points; it may be based on a patrol force, but at the same time it is important to take account of the numerous aids which may be employed to increase the efficiency of the patrol, such as mountain observation stations or lookouts, an auxiliary fire fighting force, telephone lines, emergency tool-kits, fire lines, and roads and trails through the forests.

There are various measures which may be taken to eliminate the causes of fires, namely, the posting of fire notices containing excerpts from the fire laws of the State and otherwise warning all users of the forest to be careful in the use of fire; the restriction of brush burning and fires to clear land; the proper disposal of slash left after lumbering operations; the equipment of railroad locomotives with suitable devices to prevent the escape of sparks and coals, and the clearing of railroad rights of way of all inflammable material. Each one of these measures will be taken up separately in the following pages.

PATROL

The most obvious system of protection of forest lands from fire is by means of a patrol. This is at once a simple and effective method. The first step taken by the U. S. Forest Service, when the National Forests were created, was the establishment of a fire patrol. All fire protection must be based upon this idea. It may be developed further by the introduction of mountain observation stations and telephone lines to facilitate prompt detection of fires. Roads and trails also are of incalculable value in increasing the efficiency of the patrol and making possible the rapid mobilization

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of fire fighting crews. But the patrol is the basis of all this and should be organized with the greatest care.

The central organization should keep in close touch with the field force. Frequent inspection of the work of the men in the field is necessary to produce the highest efficiency. Care must be taken to secure an organization which is readily adaptable to the emergencies of fire fighting. There should be as little "red tape" as is compatible with a proper performance of the work.

It is, of course, advisable to place as small an area as is practicable under one patrolman or ranger. The average area which must be assigned to each man will usually be determined by the amount of money which is available. With a given appropriation for a given area, however, it does not by any means follow that all rangers should look after equal areas. The apportionment of patrol districts is a matter which calls for a consideration of all of the numerous factors which influence the fire danger.

Here is where a knowledge of the sources of fire is of use. Constant patrol may be required along a railroad line in one part of the tract to be protected, while the more inaccessible regions, where the danger of all fires, except from lightning, is reduced to a minimum, do not require such careful watching.

In the spring, the brooks and streams frequented by fishermen require a vigilant patrol; in the fall, the good hunting grounds are places to be watched. During all the summer season, trails, roads, streams, and camping places which are used by campers must be patrolled.

A second factor influencing the division of the forest into patrol districts is the natural topographic features, such as mountain ranges, large streams, etc. In mountainous regions the location of trails, roads, railroads and other routes of travel are fixed by the topography. Sometimes communication may be afforded by a stream or a chain of lakes. All of these considerations must be given weight in deciding the division of the forest into patrol districts.

When the forest has been apportioned amongst the patrol force, it is time for the organizer to take up the question of the personnel of the force. If he would produce satisfactory results he must give this matter his careful attention. The duties of forest ranger,

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guard, warden, or whatever the patrolman may be called, require certain qualities in the man who would perform these duties efficiently. Such a man should be honest, energetic, reliable; and, above all, he must be a "woodsman," with an accurate knowledge of his district and able to take care of himself in the woods. The work requires men capable of going out into the woods day or night and remaining on the fire line for hours at a time, capable of directing large bodies of men fighting fire, and of providing for those men while they are in the field.

If the area of the forest to be protected exceeds a million acres, it is well to subdivide the force and provide at least one officer to take charge of each area of 1,000,000 acres or less. When good men can be secured for these positions, the central office can be relieved of a large amount of routine work, thus gaining the leisure to devise new methods by which to perfect the system.

The ranger must be provided with suitable camp outfits and an adequate supply of tools for fighting fire. Camp outfits and tools should be located at points where they will be readily available in case of fire. It is not sufficient to furnish supplies of tools at the ranger headquarters. As far as funds permit, tool boxes should be located at various points within the forests — at lumber camps, private camps, etc. The tools best adapted for this use will be described later.

OBSERVATION STATIONS

The efficiency of the patrol force can be greatly increased by lookouts or observation stations located on vantage points commanding views of large areas of the forest. The U. S. Forest Service, the forestry departments of various States, and private forest fire protective associations the country over have by their experience of the past few years determined the value of lookouts beyond a doubt. This feature of the system was evolved from the patrol. In making his rounds the ranger will naturally seek the best viewpoints in order that he may see the maximum amount of country with the minimum travel. Where lack of funds prevents the establishment of regular observation stations, with men to devote their entire time to them, this idea is excellent. Trails should be constructed to render commanding peaks accessible, and the

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Steel tower (45 feet high) on Twadell Point Observation Station, East Branch, N. Y.

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ranger should visit these points as frequently as is compatible with the performance with his other duties.

The ideal arrangement, however, is the establishment of regular stations, erecting towers if necessary, and the assignment of men to these stations during the dangerous periods of the year. The range of vision from a station cannot be fairly judged by observations made in absolutely clear weather. The hazy conditions of the atmosphere, in times of extreme drought and consequent great fire danger, decrease the area which can be covered by a mountain station. For this reason it is advisable to establish stations as near together as financial resources and the presence of suitable locations will permit. Furthermore, when two stations cover the same country, if a fire springs up within two or three miles of one of the stations, the observer on that station can go and fight the fire as soon as he has reported it to the proper ranger and has advised the observer on the other station that he will be absent from his post. Such action will often result in a great saving of time in attacking the fire.

If it is not possible to operate as many stations as are advisable throughout the entire fire season, those which the most important may be maintained, while a series of secondary lookouts may be established to be operated only during the periods of unusual fire danger.

The most competent patrolman may not discover a fire in the dense forest, but the observer on a mountain can easily detect any smoke within a reasonable distance, and, it might be said, can observe at least one hundred thousand acres in less than a minute, while the patrolman can cover but a limited area by the most diligent effort.

Each observer should be furnished with field glasses, a topographic map of the area visible from the station, a compass (unless the maps be oriented and fixed in place), an alidade, and whenever practicable, a range finder. Where the observer is well acquainted with the country, but has small knowledge of the use of instruments, the compass, alidade and range finder may be dispensed with.

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A cabin built of boards or logs, and located as near the observation point or tower as possible, completes the equipment of the station itself. Under some circumstances tents may be used; but a substantial cabin is much to be preferred, as the weather conditions on the top of a mountain are often rigorous, even during the summer months.

If it is found necessary to have a tower, one can often be built from timber secured in the adjacent forest. Standing trees may be utilized as lookouts by fastening poles across one or a number, and using them as uprights for constructing an observatory. In this case the tops of the trees are cut off diagonally and creosoted, and all bark is removed from the trunks.

Discarded steel windmill towers make excellent observatories. They can be taken to pieces and are so light as to be easily transported up a mountain. They can usually be secured for $20 or $25 each.

Following is the cost of the average equipment for a mountain observation station, not including telephone. It is considered that the labor of construction can be performed by the fire patrol force or by the observer during wet weather.

Tower	$20–$25
Cabin	$20–$40
Field glasses	$ 8–$10
Map	$ 5
Total	$53–$80

TELEPHONE LINES

The greatest efficiency cannot be secured from a mountain observation station unless the station is connected with the ranger headquarters by telephone. A single ground-circuit line, attached to trees, will usually answer the purpose. The cost of telephone equipment for a station is as follows. One mile of wire is used as a standard. Where more wire is needed, add cost of wire for the additional number of miles. In this estimate it is presupposed that the wire will be attached to trees:

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1 telephone (ordinary instrument)	$10.50	to	$27.50*
3 dry batteries at $0.25	.75	to	.75
1 ground rod ½-in. by 5 ft	.20	to	.20
1 protector	.50	to	.50
1 mile wire (No. 12 galvanized iron wire)	6.00	to	31.00†
50 split porcelain insulators	1.25	to	1.25
Total	$19.20		$61.20

Telephone lines can be built usually by ranger labor, although it may be necessary to secure the services of an electrician to attend to the installation of the instruments. It is impossible to give any average figures for the cost of the work of clearing out the right of way and stringing the wire. These items are entirely dependent upon local conditions, such as the size and density of the timber, the character and amount of underbrush, the availability of trees to which it is possible to attach the wire, etc. But little clearing is necessary, especially if a single wire is used. The clearing of a right of way for the telephone line usually goes hand in hand with the construction of the trail to the mountain station, for, unless a great saving of wire can be secured by running the wire in a straight line between the two points to be connected, it is desirable to follow the trail with the wire in order to facilitate inspection of the line by the observer. A lineman's test set is of great assistance to the observer in keeping his line in good repair, and also serves as an auxiliary instrument for emergency use. It should be provided whenever the length of the line exceeds two miles. The cost of a test set is about $10.

The usefulness of the telephone is not restricted to the observation stations; it is also of great value to facilitate communication between different members of the patrol force and between the administrative officers and members of the force. A forest which is traversed by main routes of travel, such as railroads or wagon roads, is usually tapped by the lines of the commercial telephone companies. It may not be necessary to build more than a few miles of line to connect certain points not already reached by the

* Weather proof lock case.
† No. 9 weatherproof iron wire.

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existing lines, in order to secure a telephone system which will be admirably adapted to the purposes of fire protection.

There is a wide variance in the cost of construction of these lines. If a main road is to be followed, it is often necessary to set poles upon which to string the wire, thus adding considerably to the expense. On the other hand, if the road passes through forest land, there will be trees to which to attach the wire, and yet less clearing and altogether easier construction than in the case of the mountain station lines.

ROADS AND TRAILS

The situation in forest fire fighting resembles that in city fire fighting, to the extent that the sooner a fire is attacked, the easier it is to exinguish it and the smaller the consequent loss will be. Every agency which will facilitate prompt detection of a fire, or enable the fire-fighters to reach the fire quickly, is of value in connection with the system of fire protection. Mountain observation stations provide for prompt detection of fires, telephones enable the observers to report them as soon as they are detected; and roads and trails within the forest contribute to make every section accessible.

In most forests there are old roads which have been built for previous logging operations. These, if kept cleared of brush and trees, provide access to otherwise inaccessible regions, and greatly aid the rapid mobilization of the fire-fighting force. The ranger force may be employed on this work during periods of wet weather.

FIRE LINES

As a rule small bodies of forest land are less likely to suffer from disastrous fires than large bodies. They are usually more accessible and they offer less area for the fire to travel over. A fire can be checked in the open, while in the dense unbroken forest, it is difficult to find a point of attack. An opening of any kind provides such a point. Railroads, roads, trails, streams and areas of open field or barren rock within a forest, are of great assistance in combatting a fire. The forest should be divided up into just as small units as is feasible. Where the topography of the country furnishes lines of attack which need only to be cleared to be of

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Photo C. R. Pettis.

A Fire Line.
Constructed to protect a plantation on State land in the Adirondacks.

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great use in protecting the forest from fire, or where small bodies of valuable timber, or forest plantations render it practicable, fire lines may be constructed. A fire line consists of a strip of ground from which all inflammable material — usually including the standing timber — is removed to a width of several feet. For the ordinary forest in this State it is seldom practicable to make the line over twenty feet wide. A number of narrow lines is better than one very wide one.

Trails, roads and fire lines will not invariably stop bad forest fires; they cannot be made wide enough to stop crown fires. However, they furnish vantage points from which to set "back fires," and they will check and occasionally stop surface fires and light ground fires.

EDUCATION

About ninety per cent. of the total number of forest fires which occur every year are due to carelessness or negligence. The only fires which do not start from these sources are those which are purposely set or those which are caused by lightning. Thousands of campers and sportsmen visit the woods every year. Many of these people see the forest only during their few days of annual vacation. They are not woodsmen; they are not conversant with the conditions existing in the forest, especially as regards the danger of fire. Most of them would be perfectly willing to see that their camp fires were built in safe places, and that they were extinguished when there was no more use for them, if they realized the fire danger.

Probably the most important of the true preventive measures to adopt in protecting forests from fire, is the education of this class of people to a proper realization of the ease with which fires may be started, and the care necessary to prevent them. In nine out of ten cases of forest fires caused by campers and sportsmen, the carelessness which permits the fire to escape is the result of ignorance. The only way to combat this ignorance is by education. Propaganda should be distributed calling attention to the fire danger and the care necessary to avoid that danger. Many ingenious methods of bringing the fire situation home to the public have been devised.* The insertion of fire warnings in the time table folders

* Mr. E. T. Allen, of Portland, Ore., Forester for the Northwestern Forest Fire Protective Association, has written a most interesting and instructive article on this subject in "American Forestry" for October, 1912.

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of railroads passing through the forest, and in telephone directories has proved effective in New York State. Pamphlets containing these warnings have been distributed amongst sportsmen and others who go into the woods.

"Fire Notices" posted in the woods convey the information in perhaps the most effective manner. These notices caution campers, hunters, fishermen and all other users of the woods about the use of fire; they quote portions of the forest laws of the State in which the forest is situated; and they may bear the name and address of the nearest forest officer, to whom all fires should be reported. Notices should be posted at points where they are most likely to be seen, such as along roads, trails, and streams which are frequented by campers, in railroad stations, in hotels, etc. They should be printed in large type so that they will attract attention and be easily read.

RAILROADS

The number of forest fires set by railroads under ordinary conditions can be greatly reduced by the application of suitable spark arresting devices to the locomotives. The only way to render locomotives absolutely safe in this regard is to equip them with oil burning apparatus. If proper precautions are taken, however, coal-burning locomotives will cause many less fires. The points of danger are the ash pans and the smoke stacks, or, in railroad parlance, the "front ends." If the openings in and around the ash pans are protected by screens or other devices, so that live coals cannot fall out of them on the right-of-way; if a spark arrester of fine enough mesh is placed in the front end of the locomotive, and if these devices are maintained at all times in good condition, the danger of fires being started by that locomotive is greatly reduced.

The question of locomotive equipment will be discussed further when the matter of the laws applying to railroads is taken up.

RESTRICTION OF FIRES TO CLEAR LAND OR BURN BRUSH

It has been recognized for several years that the indiscriminate setting of fires to clear land or to burn brush, especially in the more densely forested regions, has been the cause of many large and disastrous forest fires. Even the fact that these fires might damage the property of the man who set the fire does not seem to

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FIRE!

Any person who wilfully or negligently sets fire to or assists another to set fire to any wild, waste, or forest lands belonging to the State is guilty of a crime and may be punished by IMPRISONMENT for not more than TEN YEARS or by a FINE of not more than $2,000.00 or by both.—(Penal Law Sec. 1421)

Camp fires must not be started until all inflammable material has been removed.

Matches must not be dropped until extinguished and broken in half.

All camp, smudge or other fires must be absolutely extinguished before leaving them.

Every person visiting the forests will be held responsible for any damage he may cause.

It is expected everyone will use the same caution in regard to fire as if the forests were his own property.

In case of fire notify the Forest Ranger if you are unable to extinguish it.

Co-operate with all in the protection of the forest, the fish and the game for the general welfare.

Fires for clearing land, burning logs, brush, stumps or grass must not be started without a written permit from the Forest Ranger.

By order of the CONSERVATION COMMISSION

FORM OF FIRE NOTICE POSTED IN CONSPICUOUS PLACES IN THE FOREST REGIONS.
The form is changed annually in order to increase effectiveness.

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have acted as a restraint. It is evident that prevention of fires from this source can only be effected by the establishment and enforcement of rigid rules or laws by the State itself. Fires should not be set for these purposes at any time of the year except under permit from a forest officer of the State. It is not sufficient to restrict the burning to certain seasons, for the uncertain character of the weather makes it impossible to fix by dates any season within which burning may or may not be safely done.

DISPOSAL OF SLASH

The question of the most practicable method of eliminating the fire hazard caused by the large amount of inflammable material left on the ground after lumbering operations has, within recent years, received the careful attention of foresters, lumbermen, and owners of timberland the country over. That there is a great danger from this source will be admitted by all. If the mass of debris were removed, the greater part of the danger would be removed with it; but under most circumstances the cost of such an operation would be prohibitive. The problem resolves itself into the following factors: The importance of the fire risk, depending upon the location of the cut-over area, the amount of brush left on the ground, the character of the timber which remains standing, the condition of the forest floor, as regards the quantity of duff or humus in which fire would spread, and last, but by no means least, the cost of the various methods of disposing of the slash. The methods best suited to the conditions must be determined by balancing the fire risk and the cost of protective measures.

In the more open coniferous forests of the West, experience has shown that it is practicable to cut off all lateral branches from the trunk of the tree when it is felled and collect these branches in small piles. Then, when weather conditions are favorable, such as after the first fall of snow in the winter, these piles may be burned. The cost of piling and burning under ordinary conditions ranges from ten to fifty cents per thousand board feet of timber cut. When weather conditions are favorable the burning may be carried on while lumbering operations are in progress.

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The cost of the work is reduced by this method, but the risk is much greater than in the first method.

In the dense forests, characteristic of the mountain regions of New York State, where the land is seldom cut clean and where the soil is of a vegetable character, the conditions are usually such as to render burning impracticable. Even though the piles of brush be burned at the most favorable time, there is bound to be considerable damage done to the surrounding young growth. The method of lopping or cutting off all lateral branches from the top which is left on the ground, ensures the rapid decay of the branches and of the top itself. To secure the best results all lateral branches on both the upper and lower sides of the trunk, must be cut off, so that the branches and the trunk itself will lie close to the ground. If the brush is scattered when it is lopped, so that there are no large piles, all branches will lie close to the ground. and their decomposition will be still more rapid. The comparatively moist ground and weather conditions common to the forest regions of this State, make this method especially advisable. Furthermore, the custom of utilizing the timber in the trunk of a tree up to a very small diameter, leaves only a small crown which will not greatly increase the fire hazard if carefully lopped. The cost of lopping by competent men, is from fifteen to twenty-five cents per thousand board feet of timber cut.

There is no doubt in the minds of observant men that the lopping of tops induces a more rapid decay of the brush, and thus tends to reduce the fire danger after three or four years from the time of the lumbering operation. Neither can there be any logical refutation of the statement that it is much easier to fight fire on an area where the tops have been lopped, than on one where they have not been so treated. In clearing a line around the fire the loose branches may be picked up and tossed to one side without the use of an axe, while a large amount of "swamping" is necsesary where the ground is covered with unlopped tops.

It has been argued that on account of the dense mass of inflammable material close to the ground, a forest fire will at all times of the year become hotter and will damage the soil to a greater extent on areas where the tops have been lopped. Careful examination of this point, as applied to spring fires at least, does

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not seem to bear out this claim. The fact remains, moreover, that where tops have been lopped, the fire risk is rapidly decreasing after the first two or three years, while unlopped tops, propped off the ground on their lower branches, usually remain dry and inflammable for fifteen years or more.

In this connection we have discussed only the lopping of the tops of coniferous or "softwood" trees. As a rule the limbs and branches of the hardwoods decay much more rapidly than do those of the coniferous species, but in spite of this fact, the rapid increase in hardwood lumbering which has taken place within the past few years, makes the solution of the problem of hardwood slash disposal imperative. In operations where the tops are fully utilized for acid wood, there is very little material left on the ground. The fire hazard may be greatly reduced by the introduction, in connection with a hardwood logging operation, of a chemical or acid plant, which will use only large defective trees and the otherwise unmerchantable portions of trees felled for lumber.

FIRE FIGHTING

So far in these pages no mention has been made of the work of fire fighting. We have considered the various classes and kinds of forest fires, the damage which they do, the causes from which they originate, and the preventive measures to which we may resort to eliminate those causes so far as possible. A system of patrol with its aids has been outlined. Methods for the prompt detection of fires and the facilities necessary to provide for the securing of fire fighters have been considered. We come now to the matter of the actual fighting of the fire after it has been discovered.

ORGANIZATION OF THE FIRE FIGHTING CREW

Each member of the patrol force should be so familiar with his territory that when he learns of a fire in a certain locality, he can tell at once where to get men and tools to fight the fire, and how to get them to the point of attack in the shortest time.

If the fire is a small one, the ranger himself will be able to extinguish it. If, however, the indications are that it covers a considerable area, he will do well to make provision for a number of fire fighters. It is better to get to a fire with too many men than

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with too few. It should always be borne in mind that the time to attack a fire is when it starts, and that the loss of a few minutes at that time may mean hours or even days of work later, not to mention the loss of property caused by the fire, should it attain large proportions.

Here is where the fire fighting experience and knowledge of the nature of forest fires which the ranger may have will stand him in good stead. He will need to know that:

1. Fire travels much faster uphill than down.
2. It travels rapidly before the wind, but only slowly against it.
3. A large amount of inflammable material on the ground means a hot fire which cannot be approached closely.
4. The severity of the fire depends largely upon the character of the timber.
5. The hotter the fire the farther away from it the fire line will have to be started.
6. Fires, and the winds which accompany them, die down at night and spring up again in the forenoon. Evening and early morning are the best times to attack fires, and the crew should be so organized that the maximum number of men will be available for work at these times.

The ranger in charge must pick out some lines within which he thinks it possible to control the fire. Roads, trails, streams, swamps, railroads, fire lines, or topographic features may give him the opportunity to make a stand. If the flames cross his first line of attack, he must be prepared to fall back at once and start a new one, and so on, frequently again and again, until the fire is finally checked.

As soon as it becomes advisable for a ranger to employ extra help, he must begin to consider the question of organization, in order that he may secure the highest possible degree of efficiency from his men. He must see that arrangements are made for feeding and lodging his crew in the immediate vicinity of the fire. Fire fighting is arduous labor at best, and it is impossible for men to do their best work on the fire line if they have to walk long distances to and from work. The ranger should have provisions and a camp outfit sent in to the fire from the nearest available source.

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If the fire is a large one and many men are employed to fight it, the man in charge should keep the whole situation in hand. He should at all times know the progress of the work all along the fire line. If necessary, he must appoint lieutenants or foremen to take charge of certain sections, while he himself moves around the fire constantly planning the attack.

METHODS OF ATTACK

Whenever possible a fire should be attacked from the front. As a fire travels before the wind, it spreads out until its front may cover several miles. The front of the fire is where the fire fighters are most needed. If the fire can be checked along the front the sides and back can be attended to later.

It is essential that a forest fire be surrounded by a strip clear of all inflammable material before the fire may be said to be under control. In moist situations where the fire burns itself out, this strip may be supplied by the edge of the burn itself. The ground which has been burned and on which the fire has died out, will not furnish fuel for the flames. Where it is necessary to extinguish the fire some sort of a line must be cleared unless a natural barrier is so located as to lend itself to use for this purpose.

TRENCHING

If the burned area can be surrounded by a trench from which everything has been removed down to the mineral soil, an excellent fire line, and the only kind that will stop a ground fire, is secured. Such a trench may be made with mattocks, shovels, hoes, rakes or other similar tools. The implement best suited for use in fighting fire in a given forest region must be largely determined by experience. If the forest floor is covered with a deep layer of duff or humus, shovels and mattocks will usually prove more serviceable than hoes or rakes. On the other hand, if the humus is shallow and the mineral soil is near the surface, a wide, clean fire line can be cleared very rapidly with a rake.

It often happens that in dense forest there is considerable chopping to be done to clear the fire line of trees, standing and down, logs, brush and other material of like nature. In this kind of

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work an axe is indispensable. In fact, there are many uses for an axe and crosscut saw in fighting fire. When the fire has been surrounded it is advisable to go into the burned area and fell all burning trees which threaten to throw sparks across the fire line and start new fires.

Where the ground is open enough, and where horses and plows are available, a surface fire may oftentimes be stopped by a plowed furrow. An instance is on record in this State where an excellent fire line was cleared through dense timber and where the duff was very thick, by the use of dynamite. Seven dollars worth of dynamite did the work of forty men and did it much quicker than the men could have done it.

WATER

Forest fires often occur in localities far from any considerable water supply; but whenever it can be obtained, water is of great assistance in fire fighting. No fire-fighting equipment is complete without a liberal supply of pails for carrying water. The best kind of pails for this work are made of canvas with rings at the bottom and top to keep them in shape. These pails are collapsible and are lighter and more portable than the ordinary metal or fibre pails. In localities accessible by wagon-roads, water may be hauled in barrels and distributed to the fire fighters.

The most effective way of applying water is by means of a force pump. Such a pump is obtainable at a moderate price and under certain circumstances is a valuable addition to the equipment.

One of the principal uses of water is to extinguish the last vestige of fire which may remain in the duff or in stumps or old logs after the fire has been gotten under control. These places must be thoroughly saturated in order that the first breath of wind may not fan them into flame and send a shower of sparks across the fire line.

CHEMICAL EXTINGUISHERS

Chemical fire extinguishers have proved their value for use in farming sections where the forest occurs largely in the form of comparatively small, isolated woodlots, and where there are numerous roads over which a wagon load of extinguishers may be hauled. Most of the extinguishers now on the market are heavy,

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TRENCHING TO STOP FOREST FIRE.

This trench is dug down through the duff to the mineral soil. If the fire is burning slowly it will die out on reaching the trench; but if a wind is blowing, back-fires must be set at the trench before the fire reaches there.

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expensive, and difficult to transport without the aid of wagons. This renders their use impracticable in the more inaccessible forest regions.

WHIPPING

In fighting surface fires, effective work may be accomplished with brush or small branches by whipping the burning leaves at the edge of the fire back into the burned area. This may be done even more effectively with pieces of sacking or burlap soaked in water. In attacking a fire in this manner, particular care must be taken to sweep the burning material *back into* the fire area, for otherwise this whipping would serve rather to aid the spread of the fire than to check it.

SAND

A plentiful supply of sand is nearly as good as a supply of water, especially if the fire fighting crew is equipped with shovels. A shovelful of sand is tremendously effective in putting out a fire. Loam is not so valuable for this purpose as pure sand, but it may be used in a pinch.

"FIRE TRAINS"

A so-called fire train, consisting of a locomotive and one or two freight cars to carry water, tools and men, may be used to good advantage in fighting forest fires along the line of a railroad. The area which can be covered by this method depends upon the length of the hose with which the train is equipped. Water is carried on the cars, and a pump operated by the locomotive provides the power necessary to force the water through the hose. Even though the hose and pumping apparatus be omitted from the equipment, a train of this sort will often be of great value to transport men and tools to a fire.

Some railroads have supplemented the fire trains by placing barrels of water along the right of way on heavy grades where, on account of the forced draught of the locomotive when passing up grade, there is a likelihood of fires starting.

BACKFIRING

A crown fire always starts from a surface fire or a ground fire and is accompanied in its progress by these fires. It will die out when there is no inflammable material on the ground to feed the

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accompanying ground or surface fires. Anyone of these classes of fire, if burning vigorously, is likely to jump the fire line unless backfires are set. In the case of ground or surface fires, these back fires need burn over only a narrow strip before they meet the main body of the fire. These fires do not acquire the momentum of a crown fire. In the case of a fire of the latter class, back fires must be set at a considerable distance from the main body of the fire, in order that a wide strip may be cleared of fuel and the crown fire checked before it approaches near to the fire line. Otherwise the line will be crossed and the work will have to be repeated on a new line of attack.

The utmost caution must be observed in the use of back-fires. They should not be set except when, in the judgment of an experienced fire-fighter, they are absolutely necessary. Back-fires set indiscriminately and by persons ignorant of their proper use, have done untold damage because of their having been started miles away from the main body of the fire by irresponsible persons, who saw the smoke of the fire and thought that their property was threatened.

Back firing cannot be employed advantageously under adverse wind or weather conditions. A large fire creates a draught of its own, and this is one reason why a large forest fire is usually accompanied by a strong wind, which fans the flames and carries them along with it. The back-fire must be started far enough from the main fire to escape the influence of this draught, and it should be set where it will burn *up hill,* or it will do more harm than good. When it is started, the greater part of the fire fighting crew should be present to keep it from crossing the fire line.

PATROL AFTER FIRE IS UNDER CONTROL

Too much stress cannot be laid on the necessity of carefully watching a fire until every vestige of it has been extinguished. A large proportion of the damage which has been done by forest fires has been caused by fires which have broken out after they were believed to be controlled. A safe rule is to leave a man on a fire until it is apparently out and, then have him stay a day or so longer. The expense of this patrol will be amply justified in the long run.

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PROGRESS IN LEGISLATION

This report deals primarily with forest fires and fire fighting in New York State. It would not be complete without a brief review of legislation which has affected the fire situation. It is only possible in these pages to touch upon the most salient features of legislation along these lines.

In the year 1885 the Forest Commission was created and was charged with the "care, custody, control and superintendence of the forest preserve." The forest preserve included certain designated areas in the Adirondack and Catskill regions. The Commission was granted the power to employ "a forest warden, forest inspectors," and other assistants. It was charged with the duty of protecting the public interests of the State with regard to forests and tree planting, and especially with reference to forest fires in *every* part of the State. The Commission and all of its employees were authorized to order out persons to assist in extinguishing forest fires and also to take such measures as might be necessary to fight fires. Reports were required of all fires of over an acre in extent.

The supervisor of every town of the State was made ex-officio fire warden. "In towns particularly exposed to damages from forest fires" the supervisor was authorized to divide the town into districts and to appoint a district fire warden for each. The Commission was thus given the power to appoint one or more fire wardens in each of the 234 towns in the Forest Preserve. This system of fire wardens, paid only for the time they actually spent in the performance of their duties, remained substantially the same until the present system of a paid fire patrol force was inaugurated in 1909. In all cases the fire wardens were paid two dollars per day for their services during the time they were actually employed; and bills for their services had to be approved by their respective town boards of audit.

It is interesting to note the provisions of the law of 1885 regarding railroads which passed through forest land within the State. The law provided that all inflammable material should be cut and removed from the right of way twice a year; that locomotives should be equipped with spark arresters; that ashes or fire-

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coals should not be deposited upon the track in the immediate vicinity of woodlands or forests; that railroad employees should promptly report forest fires; and that the railroad companies should employ additional trackmen during exceptionally dry weather to extinguish forest fires near the railroad lines.

The law also contained a section requiring the Forest Commission to post fire notices. A severe penalty was prescribed for the setting of forest fires by incendiaries.

An appropriation of $15,000 accompanied the law. This amount covered all the expenses of the Commission, including salaries and expenses of employees, etc. There was no provision made for a fire patrol force, nor was there money enough to enable the proper enforcement of the law.

The report rendered by the Forest Commission in the year 1888 embodied recommendations for an amendment to the forest law to authorize the payment of not to exceed one dollar a day to all men employed by fire wardens to aid in preventing and extinguishing forest fires. Such an amendment was passed at the next session of the Legislature.

The Forest Commission was succeeded in 1895 by the Fisheries, Game and Forest Commission. The new Commission, in its first annual report, recommended two important changes in the laws relating to forest fires. First, it recommended that the expense of fighting forest fires be borne one-half by the State and one-half by the town in which the fire occurred; the entire bill to be first audited and paid by the town, after which the State should refund to the town one-half the sum thus expended. In 1896 the law was amended to provide for the payment by the State of one-half the expense of fighting fires in "towns within the counties containing the Forest Preserve." The same law increased the pay of fire wardens from $2 to $2.50 per day for the time actually employed.

The new Commission in 1895 also recommended the insertion in the law of a clause forbidding the lighting of fires for clearing land or to burn brush, in certain designated towns within the forest preserve, between April 1 and June 10, and between September 1 and November 10; and providing that from June 10 to September 1 such fires should only be set at such times as the

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fire warden should give permission. This recommendation was embodied in the forest laws of 1897. The area to which these restrictions applied included 85 towns within the Forest Preserve. This was the origin of the so-called "Fire Towns" which will be explained further in subsequent pages.

The law of 1898 also increased the compensation of fire fighters, who might be called out by a fire warden, from $1 to $2 per day for the time actually employed.

The forest law was amended in 1900 by the addition of a provision requiring the appointment of a chief fire warden to take charge of the fire wardens, under the direction of the Superintendent of Forests, and to attend to the enforcement of the laws relating to forest fires.

In 1900 also the application of the law placing the organization of a fire warden system in the hands of the Commission was restricted to the sixteen forest preserve counties in the Adirondacks and Catskills. In spite of that restriction of the forest law, the town supervisor was still ex-officio fire warden in his town, and a decision handed down by the Supreme Court in May, 1902, held that a supervisor could be held responsible for damages caused by a forest fire which was suffered to burn on account of his negligence or inattention to duty.

The name of the Fisheries, Game and Forest Commission was changed by the laws of 1901 to the Forest, Fish and Game Commission and the number of commissioners was reduced to one.

The bad forest fires of 1903 emphasized the need of the enforcement of the laws relative to the proper precautions which should be taken by railroads. To provide for the enforcement of these laws, provision was made in 1904 for five assistant fire wardens, at least four of whom were to inspect railroads and engines operating thereon in the forest preserve counties of the State.

The laws of 1904 further provided that in times of great fire danger the Forest, Fish and Game Commissioner should have the power to organize and maintain a patrol along railroad lines in the Forest Preserve, one-half of the cost of such patrol to be paid by the railroads. Under the same conditions the Commissioner was given the power to organize a patrol in any town in the Forest

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Preserve during the fire season. The appropriation under this law was not sufficient, however, to permit the organization of a large and efficient patrol force.

Thus we see that, with a few changes, the fire warden system prevailed from 1885 to 1909. The disastrous fires of 1908, coupled with the lessons taught by the fires of 1903, showed that the system was unsatisfactory. The need was felt for the establishment of a paid fire patrol force, and of a sufficient force of railroad inspectors to secure the enforcement of the laws pertaining to railroads. The year 1909 saw the introduction of the present system, which has since been retained substantially unchanged.

The 1909 law provided that the Commissioner should divide the Forest Preserve into districts not to exceed four in number and place in charge of each of these districts an official to be known as a Superintendent of Fires. With the approval of the Commissioner the Superintendents of Fires were to divide their districts into patrol districts, employing a suitable person, to be known as a Fire Patrolman, to look after forest fires within each patrol district. Besides providing for a paid fire patrol, the law also made possible the establishment and operation of mountain observation stations.

The Governor was given the power, in time of extreme drought, to forbid, by proclamation, any person from entering any portion of the lands within the Forest Preserve for the purpose of camping, hunting or fishing.

The portions of the law relating to the restriction of the setting of fires to clear land, burn brush, etc., remained practically unchanged. The provisions relating to railroads were made more specific than in the old law. The Public Service Commission was made the judge of what constituted suitable devices to prevent the escape of sparks and coals from the engines. All railroads were required to clear their rights of way of inflammable material at least twice a year; and lines in the forest preserve counties were required to take such action whenever such clearing might be required by the Forest, Fish and Game Commissioner. The "inspectors" provided for by the law of 1904 were retained in the new organization, and these men have been employed to good advantage in securing compliance with the law.

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In the winter following the serious Adirondack fires of 1908, the Forest, Fish and Game Commissioner requested the Public Service Commission to issue an order compelling the use of oil as fuel for locomotives operating during the daytime along certain designated lines within the Forest Preserve. Such an order was issued by the Public Service Commission in 1909, after hearings had been held at which the whole question of the fire danger along the lines of railroads passing through the more densely forested regions of the State was carefully considered from all standpoints. The order is still in effect during the fire season of each year. Coal burning locomotives equipped with suitable protective devices may be used on these lines during the night only, viz., between 8 P. M. and 8 A. M.

The law of 1909 altered materially the system of paying fire bills. The State, as before, was to bear one-half the expense of fighting forest fires within the "fire towns;" but under the new law the State first advanced the whole amount of the fire bills, and at the end of the season rendered a bill to the towns for their share of the expense. This was a marked improvement over the former system in that it ensured more prompt payment of all accounts and enabled the Forest, Fish and Game Commissioner to secure greater efficiency in the work of fire fighting. This system has continued unchanged.

The paid patrol force was supplemented by a force of "Special Patrolmen." These men corresponded to the "Fire Wardens" under the old law. They were to be paid at the rate of $2.50 per day for time actually spent in fighting fires which were burning, but were not authorized to incur expense in patroling for the purpose of detecting fires.

The 1909 law fixed the rate of compensation for persons who might be called out to fight fire by the regular or special patrolmen at fifteen cents an hour. This may seem like poor pay for the arduous labor of fighting fire, but under the former law, when the rate of compensation was twenty-five cents an hour, frequent cases occurred wherein unscrupulous persons deliberately set fires in order that they might secure employment in extinguishing them.

Probably the most radical feature of the law of 1909 was the

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section dealing with the disposal of slash left after logging operations. After the fires of 1908, the Forest, Fish and Game Commissioner held a conference with the leading lumbermen of the State for the purpose of devising some means of reducing the fire hazard on cut-over lands. Most of the lumbermen favored the idea of lopping the tops of trees which were felled in lumbering operations. The law, as finally drafted, provided that all the limbs and branches of any coniferous trees cut within the Forest Preserve, unless the trees were designed for use with the branches on them, should be cut off or lopped from the tree at the time of cutting. A penalty was provided of $25 for each offense, plus $2 for each tree-top which should not be looped in compliance with the law.

No material changes were made in the Forest, Fish and Game Law in either 1910 or 1911. In the summer of 1911, however, the Forest, Fish and Game Commission was consolidated with the State Water Supply Commission. The present Conservation Commission was created, combining the duties of the two former commissions. One of the first tasks undertaken by the new Commission was the redrafting of the Forest, Fish and Game law, in the Conservation Law of 1912. The laws relating to the fire protective system were not materially altered.

The title of Superintendent of Fires was changed to "District Forest Ranger;" that of Fire Patrolman to "Forest Ranger;" that of Special Patrolman to "Fire Warden."

In order to facilitate prompt payment of fire bills in cases of emergency, the auditor of fire accounts was empowered to draw on the comptroller for advances to meet the expenses of fighting fires.

Strict regulations, as to precautions to be taken by persons building fires for cooking, warmth or insect smudges on forest land in the Forest Preserve, were embodied in the new draft of the law.

The application of the law requiring the lopping of tops was restricted to the area included within the Fire Towns.

The law providing for the cleaning of rights of way and the equipment of locomotives with suitable protective devices, was made state-wide in its application, instead of being restricted to

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the forest preserve counties. The organization of the railroad inspection force was improved by the designation of two Chief Fire Inspectors and not to exceed four other Fire Inspectors. The State was to be divided into two districts with a Chief Inspector in charge of each one. Power was given to the Chief Inspectors to reject from service any locomotives which, in their opinion, were "deficient in adequate design, construction or maintenance of their fire protective devices."

The law further required that all engines operated in or near forest land, such as donkey, traction, or portable engines, steam, sawmill or any other engine not using oil for fuel, should be equipped with devices giving "the most practicable protection against the escape of sparks and cinders from the smokestack thereof."

Having considered the progress of legislation affecting the forest fire situation from 1885, when the first laws bearing upon this matter were enacted, to the present time, we are now in a position to take up the question of the present organization of the fire fighting force under the Conservation Commission.

PRESENT FIRE PROTECTIVE SYSTEM MAINTAINED BY THE CONSERVATION DEPARTMENT

The Conservation Commission is composed of three commissioners appointed by the Governor. The department is divided into three branches: (1) Lands and Forests, (2) Fish and Game and (3) Inland Waters. A deputy commissioner is appointed to head each of the three branches of the department. The Division of Lands and Forests is further subdivided into two bureaus, (1) Lands and (2) Forests. The latter is designated as the Bureau of Forestry, and is under the direction of the Superintendent of State Forests.

The work of the Bureau of Forestry may be considered under three heads, (1) fire protection, (2) trespass and (3) technical forestry. Before going on to discuss the question of fire protection, it may be well to define the Forest Preserve as it exists at present There are sixteen forest preserve counties. Twelve of these, containing about 10,773,000 acres, are in the Adirondack

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region. These counties are as follows: Clinton, Essex, Franklin, Fulton, Hamilton, Herkimer, Lewis, Oneida, St. Lawrence, Saratoga, Warren and Washington. There are four forest preserve counties containing 2,913,000 acres in the Catskill region. These are as follows: Delaware, Greene, Sullivan and Ulster. This gives a total of 13,686,000 acres within the Forest Preserve. Within this area there are over 1,600,000 acres of land owned by the State.

The work of the Conservation Commission in protecting the forests of the State from fire is now confined to the more densely forested portions of the forest preserve counties. The area is defined by law as being comprised in 78 towns in the Adirondacks and 19 towns in the Catskills, a total of 97 "fire towns," the aggregate area of which is approximately 7,270,000 acres. Although the Conservation Department is not charged with the duty of looking after fire protection in the State outside of the fire towns, there is a section of the town law which provides that town supervisors shall be ex-officio fire officers.

OFFICE FORCE

The work of fire protection is directly in charge of the Superintendent of State Forests and under him, of the Assistant Superintendent of State Forests.

The auditor of fire accounts is charged with the duty of examining carefully all bills which may be submitted by the field force and of auditing these bills if correct. These bills include items incurred in connection with the erection of observation stations or telephone lines, the purchase of tools and other equipment for fire fighting, the traveling expenses incurred by members of the field force and the bills submitted for expenses incurred in connection with the actual fighting of fires.

As mentioned before in these pages, the entire expense of fighting fire, including the salaries and expenses of the fire patrol force, mountain observation stations, and railroad inspectors, is paid by the State. The total expense incurred in connection with the hiring of temporary labor to fight fires is paid in the first instance by the State, but in November of each year, bills for one-half of this expense are sent to the towns in which the fires occur.

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FIRE DISTRICTS AND DISTRICT FOREST RANGERS

The Fire Towns are divided into five districts, four in the Adirondack region and one in the Catskill region, as follows:

District 1. Clinton, Franklin and the northern half of Essex counties.

District 2. Southern Essex, Warren, Washington and northwestern Hamilton counties.

District 3. St. Lawrence, Oneida, Lewis, northern Herkimer and northwestern Hamilton counties.

District 4. Fulton, Saratoga, southern Herkimer and southern Hamilton counties.

District 5. Delaware, Greene, Sullivan and Ulster counties.

An officer designated as district forest ranger is appointed for each district and has his headquarters at a suitable point within the district. He is paid a salary of $1,500 a year, and is allowed his necessary traveling expenses. The district ranger is charged with the duty of protecting the forests within his district from fire. A force of forest rangers is appointed for each district and the district ranger is in charge of those men. All fire bills must be approved by him before they can be audited for payment. He directs the work of the ranger force in the field and advises the commission as to the division of his territory into patrol districts. All ranger reports are forwarded to the district ranger, and must pass through his hands before they are sent in to the Albany office.

FOREST RANGERS

The actual fire fighting force is made up of a number of men known as forest rangers, who are appointed by the commission and are paid at the rate of $60 per month. These men devote their entire time to the work of the department. During the fire season, that is, from May to November, between 65 and 70 forest rangers are employed, about fifteen for each Adirondack district, and ten for the Catskill district.

All the rangers are stationed where they can be readily reached by telephone. When a ranger is notified of a fire, he goes to it at once, or as soon as he can gather together a crew of fire fighters.

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He is given authority by law to summon any able-bodied man to help fight fire and any person who refuses to respond to such summons is liable to a fine of $20. Each ranger has a quantity of tools, such as shovels, rakes, hoes, mattocks, pails, etc., at his headquarters, and tools are also stored at convenient places in different parts of each patrol district so as to be readily available in case of fire. Tents and camp outfits are also provided when it is necessary to board men in the woods, as in the case of a large fire at a long distance from any settlement.

FIRE WARDENS

Fire wardens are appointed to supplement the force of regular men. They are, however, paid only for the time they actually spend in fighting fires. When a ranger has more than one fire in his district at a time, he appoints a foreman to take charge of each fire, while he himself moves from one fire to another, to see that the work is going on properly. The purpose of the force of fire wardens is to secure a large number of men whose interests are in the forest, and who are willing to take charge of any fires which may spring up in their immediate vicinity. These men are directly responsible to the regular rangers in whose district they are located. There are at present about 200 fire wardens employed by the department.

OBSERVERS

The efficiency of the patrol force is greatly increased by the operation of mountain observation stations. There are at present 43 of these stations in the Adirondacks and 7 in the Catskills, making a total of 50. Each station has an observer assigned to it. Most of the stations are so far from settlements that the observer is obliged to live on the mountain. In fact, the best service is usually secured when the observer lives on the summit of the mountain, in the immediate vicinity of his station. In such cases camps have been provided. These camps may be tents, board shacks or log cabins. Every mountain station has a telephone instrument in the shelter on the summit, and where the observer's camp is at a considerable distance from the station, a second instrument is placed at the camp. The mountain observers are

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paid a salary of $50 or $60 per month, plus $12 a month where they live on their mountains. They are employed during the whole of the fire season, namely, from May to November.

PLANTATION WATCHMEN

Nearly 4,000 acres of land in different parts of the Adirondack Forest Preserve have been reforested by the State within the past decade. On account of the great value of these forest plantations, it has been considered advisable to appoint watchmen to protect them from fire during the dangerous season. Three of these watchmen have been employed during the past year, with the result that hardly an acre of reforested land has been damaged by fire.

RAILROAD FIRE INSPECTORS

The Conservation Law provides for the appointment of two chief railroad inspectors and four railroad inspectors. The chief inspectors receive a salary of $1,200 a year, the other inspectors $900.

The State is divided into two districts, one including the main line of the New York Central R. R. from Albany west, and all territory north of that line, and the other district including the southern portion of the State. A chief inspector and two inspectors are assigned to each district. The work of enforcing the laws relating to railroads is assigned to these men under the direction of the Commission. The chiefs hold conferences with representatimes of the railroad in order that there may be no misunderstanding as to the requirements of the law as regards the clearing of rights of way and the proper equipment of locomotives with fire protective devices. Frequent inspections are made, both of rights of way and of locomotives, and reports of these inspections are submitted to the Albany office. Copies of the requirements issued by the Public Service Commission at the request of the Conservation Commission are given to all inspectors and they are expected to see that these requirements are complied with.

EFFICIENCY OF THE PRESENT SYSTEM

Since the inauguration of the present fire protective system there has been ample opportunity to test its value. The summer

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of 1911 was a dangerous fire season, and the conditions which prevailed throughout the season of 1913 were those of unusual drought with an attendant fire danger equaled only, within recent years, by the seasons of 1903 and 1908.

The value of the observation stations as aids to the fire patrol force has been demonstrated beyond a doubt. During the year 1912, an average fire year, with a territory assigned to each ranger of approximately 100,000 acres, the entire cost of fire protection was about nine tenths of a cent per acre, and less than one-tenth of one percent of the area under protection was burned over.

If we compare the three years of great drought, namely, 1903, 1908, and 1913, the efficiency of the present system is immediately seen. The damage caused by the fires of 1903 was $864,082; during 1908, $802,135, while in 1913, under similar conditions, it was but $51,445. The area burned in 1903 was 464,189 acres; in 1908, 368,072; and in 1913, 54,796 acres. The change in organization effected in 1909 has not only resulted in reducing the acreage burned by 85 per cent. and the damage by 94 per cent., but also has reduced the cost of extinguishing fires from $189,660 in 1908 to $96,122 in 1913. The figure for the latter year includes the entire cost of the ranger force and the expenses for extra help hired to fight fires.

Bearing in mind that the years 1908 and 1913 are comparable as regards fire danger, the following tabulation of the forest fires of the last six years is a fair test of the usefulness of the present system.

YEAR	Number of fires reported	Total acreage burned	State land burned	Total damage	Average acreage burned per fire	Average damage per fire	Number of observation stations
1908.....	605	368,072	54,912	$802,135	608	$1,326	0
1909.....	307	11,759	198	23,126	38	75	15
1910.....	277	12,680	1,570	17,803	46	64	20
1911.....	506	37,909	6,794	43,664	73	86	36
1912.....	383	6,990	629	11,340	18	30	49
1913.....	688	54,796	11,437	51,455	79	75	50

The ranger force has rendered efficient service in the enforcement of the fire laws. They have cautioned persons going into the

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woods concerning the danger of forest fires; they have posted fire notices, giving the provisions of the law, and they have looked after the enforcement of that section of the law which provides for the restriction of the setting of fires to clear land or burn brush.

COOPERATION

One phase of protecting forests from fire which looms large in any consideration of the question is the necessity for cooperation by the different interests concerned with such protection. In order to be economical and efficient, a protective system should apply over a larger area than is usually controlled by one interest. Besides this, the peculiar nature of forest fires requires coordination of effort by all persons interested. To avoid dangerous consequences, a forest fire should be attacked when it first springs up. If a man sees a fire start on his neighbor's land and waits until it reaches his own property before fighting it, he may find that it has gotten beyond control by that time.

Proper appreciation of the value of cooperation is the cause of the rapid and successful development of the various forest fire protective associations which have been formed in the United States within recent years. This movement has attracted many lumbermen and timberland owners in the West, and it is only a question of a few years before it will advance to this State. Even now, we have a certain degree of cooperation. The States cooperates with the towns; the lumbermen of the forest regions cooperate with the State by granting free sites for observation stations and timber with which to build cabins and towers, by allowing free use of telephone lines, by furnishing crews of woodsmen to aid in fighting fires, etc.

COOPERATION UNDER THE WEEKS LAW

Under the provisions of the Weeks Law, which was passed by Congress in 1911, a certain sum of money was appropriated for the use of the United States Forest Service in buying up lands to establish National Forests on the headwaters of navigable streams in the eastern part of the country and in cooperating with the forestry departments of the states in establishing protection

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from forest fires. In 1911, New York secured $2,000 for fire protective work, provided an equal amount was spent within the same area by the State. The restrictions of the law confined the use of the money to such parts of the watersheds of the Hudson and Delaware rivers as lay within the Forest Preserve.

In 1912, under a similar agreement, $4,000 was secured from the Federal Forest Service, and in 1913 the allotment was increased to $5,000. The aid thus given has made possible the establishment and operation of more observation stations than would have been possible with the amount appropriated by the State alone.

CONCLUSION

In concluding, it is important to consider the lines along which future development of our system of fire protection must take place. We believe that the system itself is effective, economical, and thoroughly practicable. Protection from forest fires is being afforded to property worth many millions of dollars, and at an annual cost which probably does not exceed one-tenth of one per cent. of the total value of that property.

There are, however, a number of the details of our system which must be improved before we can secure the maximum efficiency. More mountain stations should be established. In some places there are wide gaps in the system of observation stations. In clear weather the stations now in operation cover the territory fairly well; but during the hazy and smoky conditions, which invariably accompany a bad fire season, the views from these mountains are restricted. The remedy for this condition lies in the establishment of a series of secondary mountain stations, which should be equipped with telephones at the beginning of the fire season, but which need not have observers assigned to them unless the fire hazard becomes great.

Many miles of telephone will need to be constructed before satisfactory communication can be secured throughout all parts of the Forest Preserve. In planning these lines, it is important to look ahead into the future, in order that each section of line which is built may form a link in a carefully planned telephone system — useful for purposes of administering the forests and protecting them from fire.

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Where there are large unbroken blocks of forest land, roads and trails should be constructed wherever possible, to make these tracts accessible to fire fighters. The restrictions imposed by the State Constitution upon the State land, whereby no trees may be cut for any purpose, may impede the progress of this work. However, we hope that eventually the people of the State will see the value of allowing the practice of forestry in the forests belonging to the State, both as a means of reducing the fire danger, and as a proper and legitimate source of revenue, and that they will vote to change that iron clad amendment to the Constitution, so as to permit the legitimate use of the forest wealth of the State.

Cooperation between lumbermen and owners of timberland has not been sufficiently developed. A fair degree of fire protection has been given by the State to privately owned tracts of timberland, within the Forest Preserve, but it is time now for the owners of those tracts to do something for themselves. In the Adirondack region, especially, excellent opportunities are presented for the successful organization of forest fire protective associations. Large contiguous areas of forest land, under the ownership of only a few persons, make this proposition thoroughly practical and workable. Furthermore, such organizations would greatly aid, without interfering or conflicting with, the system of protection managed by the State.

Although the town law gives the supervisor the same authority in his town as the Conservation Commission has in the "fire towns," it is time for New York to consider the question of establishing a system of protection which shall be statewide in its application. Peculiar conditions which have existed in New York State, owing to the establishment of the Forest Preserve many years ago, have led thus far to the restriction of State fire protection to certain designated regions, which comprise only about one-fourth of the total area of the State. It is right and proper that the State should devote a large part of its attention to fire protection in the localities where its own forest lands are situated; but this is no reason why the rest of the State should receive no State aid in this important work. There are many large tracts of forest land which are not included in the fire towns, besides vast areas containing valuable woodlots interspersed amongst

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agricultural lands. The woodlands outside the fire towns need and deserve fire protection as much as do those inside the preserve. Other States east, south and west of New York, have established forest fire protective systems which are statewide, and which cover regions where the fire hazard is certainly no greater than it is in the woodlands of New York outside of the fire towns.

What is needed is the enactment of wise legislation which will enable the Conservation Commission to establish and control a system of fire protection throughout the State. The project is entirely feasible and may be conducted at a nominal cost to the State.

Respectfully submitted,

WILLIAM G. HOWARD,

Assistant Superintendent State Forests.

December 1, 1913.

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ANNUAL REPORT

OF

DIVISION OF FISH AND GAME

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CONSERVATION COMMISSION

DIVISION OF FISH AND GAME

To the Conservation Commission:

I herewith transmit to you, pursuant to law, the annual reports of the Chief Game Protector, State Fish Culturist and the Supervisor of Marine Fisheries.

Respectfully yours,

THOMAS H. GUY,

Deputy Commissioner.

Decmber 31, 1913.

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ANNUAL REPORT

OF THE

CHIEF GAME PROTECTOR

Hon. THOMAS H. GUY, *Deputy Commissioner, Division of Fish and Game:*

SIR.— I respectfully submit herewith my report on the enforcement of the Conservation Law relating to fish and game of the State of New York, for the year ending September 30, 1913; covering the work of the protectors in the bringing of actions, together with the amount of recoveries of fines and penalties, and prison sentences, for violations of the Conservation Law. It is very gratifying that the statistical table which follows again shows a very substantial increase in the number of cases successfully prosecuted. The regular protective force prosecuted this last fiscal year a larger number of cases than during the preceding year, there being a gain of 927 cases. The increase over the last fiscal year demonstrates the strict attention that the regular protectors have given to their duties of enforcing the Conservation Law relating to fish and game, and as a whole their work is satisfactory, except in a very few instances, taking into consideration that the department has 125 men under regular pay.

The work of the special protectors is not at all satisfactory. A large majority of the specials do not make their monthly reports as required, or keep in touch with the division chief at all. But as the law now requires an applicant for the position of special protector to take a non-competitive examination, I am encouraged to believe that this will be the means of increasing the efficiency of the special protectors.

During the last fiscal year, as in the past, the amount of the costs in connection with recoveries for misdemeanors of the Conservation Law prosecuted by special protectors, shows their in-

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ability to handle their cases without the assistance of attorneys and constables. Statistics bear me out in this statement. In a great many cases prosecuted by special protectors where there is no court procedure, simply a confession of judgment before a justice, an attorney has been retained by the special protector, the charge for which has resulted in reducing the sum total remitted to this Commission. Therefore I have recommended that the Commission dispense with the services of a large number of the specials, so that better-informed men can be appointed under the new provisions requiring an examination. The examination consists of questions pertaining to the Conservation Law giving protection to fish and game in the State, court procedure, etc.

In regard to the work of the regular protectors, the average gross recovery per case is very commendable, taking into consideration the fact that all persons prosecuted are not fined, as there are many suspended sentences and John Doe proceedings.

I am thoroughly convinced that the law giving protection to birds and quadrupeds in the State of New York is in better shape than ever before, with a very few exceptions. In the past it has been the disposition of the Legislature to enact many amendments, with a tendency to special laws. At the present time the law is practically uniform, with the exception of certain wise provisions giving additional protection to certain species of fish and game enacted under Section 152 of the Conservation Law.

NON-SALE OF NATIVE GAME

I cannot too strongly recommend the continuance of the law which prohibits the sale of native game. This in my opinion is the best measure for the protection of the game of the State of New York that was ever enacted, closing, as it does, the markets of the State to the so-called market hunter, and thereby taking away the incentive to slaughter the game for a money consideration. I believe that the law recommends itself to a majority of the sportsmen, as they are beginning to realize the fact that the game is a valuable asset to the people. Of course there are always a few who will object to any law that curtails their selfish interests.

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TAGGING OF TROUT

The tagging of trout has worked along the same lines as the law which prohibits the sale of native game, as it protects the native wild trout, but allows the sale of trout raised in private hatcheries, thereby giving to the people of the State the opportunity to have trout for their table at any time during the year, while at the same time closing the market to the unscrupulous fisherman. The system adopted by the Commission which provides that all trout raised in private hatcheries for sale must be tagged, is giving general satisfaction to the large hotels and restaurant keepers who deal in this commodity, as they feel perfectly safe in the handling and sale of the trout at any time, since the tag assures them of its legality. The tagging is also providing a revenue for the State, as a charge is made of three cents per tag, the tags being furnished by the Department to the hatchery. The hatchery must be operated under a license issued by the Conservation Commission. During the past fiscal year $8,638 has been received for tags which have been placed on hatchery raised trout. A great many of these trout come from private hatcheries without the State, and this system will be the means of promoting the business of raising trout in private hatcheries for sale within this State.

ADDITIONAL PROTECTORS

In the past large numbers of persons have been apprehended for misdemeanors of the Conservation Law in relation to fish and game, because of the fact that they were not familiar with its provisions, and therefore violated the law unintentionally. It was then an easy matter to get evidence of a misdemeanor being committed. At the present time it is entirely different. There are practically no violations committed because of unfamiliarity with the law. Therefore it is a difficult matter to readily apprehend the violators, and it naturally takes more time and ability on the part of the protectors to detect these crimes. The statistics of the department show that there has been a large increase in the number of cases prosecuted.

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I am firmly of the opinion that we are able to detect with our present force but a small percentage of the actual violations occurring, and I would respectfully recommend that the force should be increased to at least two hundred men.

GAME INCREASING

From various sources of information, particularly through the protective force, the game conditions in most parts of the state show very encouraging improvements. Grouse shooting in many sections is much more satisfactory than it has been for years, in fact, since the epidemic struck the grouse and practically wiped them out several years ago. The birds had a good nesting season generally, and the strict enforcement of the law, the close season and the bag limit are beginning to have their effects in the general increase of the hunter's favorite game bird. The increase holds good, except perhaps in the Adirondack region, where the partridge is not making the gains he should. This fact is attributed largely to the abundance of the foxes in that section, and as the taking of foxes by hounding is not permitted, because of the forests being thickly inhabited by deer, the foxes are undoubtedly making heavy inroads on the grouse in that part of the State.

Woodcock

Woodcock are reported as being more plentiful almost everywhere, especially in the northern part of the State. This applies both to the migratory and the native woodcock.

Pheasants

Wherever covers have been stocked with pheasants, they are increasing rapidly, notwithstanding the popularity of pheasant shooting, in sections which have not enjoyed bird hunting to any extent for a generation. This is particularly true in the counties of Ontario, Wayne, Monroe, Orleans, Niagara, Genesee and Livingston. The pheasants introduced have multiplied very rapidly, and they are well adapted to the agricultural sections, getting along with comparatively little cover. Good reports on pheasant shooting also come from Cattaraugus and Chautauqua counties. The

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sportsmen are highly pleased with the successful experiment in introducing these splendid game birds, and the farmers also seem to be generally well satisfied, because, in addition to furnishing them with a good day's hunting, the pheasant is a great destroyer of insect pests.

Deer

Reports which cannot be disputed show that there are more deer in the State of New York at the present time than at any time during the past twenty-five years. Every hunter who goes into the woods reports seeing a large number of deer throughout the Adirondack forests. There are also reports of numerous deer in the Catskills, and even in the southern tier of counties. In Rensselaer county, in woods which command a view of the capitol at Albany, a party of grouse hunters a short time ago saw five deer together in a buckwheat field. This speaks well for the rigid protection given the deer by the protective force, and the policy of cutting marsh hay and stacking it for feeding the deer during the more severe weather; also these good effects are due to the operations of the buck law, which had the indorsement of the sportsmen of the State and the backing of this Commission.

Ducks

Since the law was enacted which prohibits spring shooting, the number of ducks has largely increased. This is partly owing to the fact that in covers suitable to the duck, there have been large broods raised. In the past where spring shooting was allowed, the ducks in their migration never stopped and raised their young in the State of New York, but migrated as far north as the Hudson Bay country to hatch their broods. In several instances during the past winter, wild ducks have lingered in our open waters, particularly Seneca, Cayuga and Keuka Lakes, and Sodus bay, so that it was found necessary to feed them to keep them from starving. This has reference particularly to the more severe part of the winter, when their feeding grounds became covered with ice.

Quail

Quail are also becoming somewhat plentiful throughout the State. There is no doubt that as a result of the five years' close

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season which has been placed upon quail (with the exception of Long Island), these birds will again become more abundant throughout the State. There is no reason why there should not be quail in the State of New York, particularly in the southern part, where the winters are milder.

Beaver

Beaver continue to increase in the Adirondack region, and it has been found necessary to remove some beaver from the vicinity of the Fulton Chain of lakes, owing to the damage which they were doing to private property. I think that in a few years there can be a short open season placed on beaver.

ANNUAL MEETING

The annual meeting of the State game protective force was held in the Assembly Chamber on June 11th and 12th, and was a marked success from the standpoint of instruction to the protectors.

A paper was read by Division Chief Charles E. Lee, on the Merit System for Protectors; by Mr. M. C. Worts, Superintendent of Inland Fisheries, on Rules and Regulations Governing Net Licenses; by Mr. J. V. Sauter, Deputy Chief Game Protector, on the Permissive and Prohibitive Plan of the Conservation Law; by Division Chiefs, J. E. Leavitt, on Protectors' Reports to the Department, Robert M. Nichols, on Deer and Their Habits; B. A. Cameron, on Court Procedure as Applied to the Enforcement of the Conservation Law in Civil Actions; J. A. Colloton, on Definitions of the Conservation Law; C. A. Johnston, on the Economic Value of the Song Birds to the Farmer and the Agricultural Interests; W. C. Farley, on Court Procedure, as Applied to the enforcement of the Conservation Law in Criminal Actions; John T. McCormick, on Powers of Game Protectors; Charles R. Stapley, on the Importance of Game Clubs in Connection with Game Protection; W. H. Weston, on the Duties of a Game Protector; F. W. Hamilton, on Special Game Protectors, and F. C. Mullin, on Nets and Netting. Also we had the pleasure of listening to an address by the Hon. George W. Field, Chairman of the Commissioners on Fisheries and Game of the State of Massachusetts.

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HUNTING LICENSES

The statistics found in connection with this report as to hunting licenses show a decided increase in the number issued, owing, I think, particularly to the fact that the game protectors have received instructions to look over every hunter found in the field, demanding to see the hunting license and taking the name and number thereof; which educates the sportsmen of the State up to the fact that it is unsafe to take the chances of going afield without procuring a hunting license.

The valid reason for the law protecting the wild game of any State is found in its value to the whole people thereof. This point is extremely well defined in the decision of the United States Supreme Court, reading as follows:

"The game of a state, meaning fish, flesh and fowl, belongs to the whole people of that state, and not to the reckless and bloodthirsty individual who may happen to slay it. In its abundance it is a valuable asset to the whole people. The great value of the game of a district is not found in its meat pounds lying upon the table, but rather in the inducement it annually puts before the millions of field weary farmers and desk weary clerks and merchants to get into their old clothes and out into God's air and sunshine."

Other strong points favorable to the protection of game are as follows: To protect agriculturists from enormous losses occasioned by vermin, which our insect and rodent eating birds destroy; to assist in saving forests by protecting the birds that keep down those insects which are destructive to trees and shrubs; to save valuable species from extermination, thus preserving a satisfactory representation of our once rich fauna for posterity; to preserve for posterity sufficient of game and fish so that they may have their chance to get out into God's air and sunshine so aptly described in the decision of the Supreme Court of this country above quoted. It is an easy matter for a few selfish, mercenary or merely reckless pot hunters to destroy the game of a State, and in such destruction to perpetrate a wanton robbery of all of that great portion of the public not included in their own ranks. Then, we may take it that the purpose of the law is to

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protect and perpetuate the wild game indigenous to the country, not for the sake of the game itself, but for the sake of the whole people, and for its value to the whole people.

THE MERIT SYSTEM

The past year is the first in which the merit system has been applied to the protective force of the State, and there is every indication that it is a wise provision, as it stimulates the whole force so to perform the duties for which they have been appointed, that they may be placed in the first grade, which entitles all those attaining to that rank to an additional salary at the rate of $50 per annum, up to $1,300. One of the provisions which was applied to a protector who wished to attain the first grade, was that he must not have a private business which would take his attention and time from his game protective work. I believe that no protector who has a private business or profession of his own should continue with the Conservation Commission, unless he immediately severs all other business ties. The underlying reason for this fact is found in the old saying that no man can serve two masters. In the past there have been men in the service who made claim that their position and their business did not conflict. This might have been true, but there assuredly comes a time when one or the other business exacts close attention at the expense of the other. In such a case the protection of game is apt to be neglected, for the reason that the State is a good old tolerant mother, and the salary comes along once a month anyway, while the private business pays an income only in proportion as the man who owns it stays on the job.

Therefore the Department was only able to place in the first grade 17 men out of the 125 employed. In placing these seventeen men in the first grade, it was necessary to take into consideration the physical condition of each protector, and his absolute belief in the justice of the conservation of our natural resources and the preservation of our wild life; he must have unflinching courage; he must be something of an educator, and must be well acquainted with his own territory, for it is necessary that he be on the spot sooner and stay on the spot longer than the violators; in fact, he must beat the poacher at his own game if he is going to success-

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fully apprehend violators of the law. He must be a man who understands what constitutes evidence, and what is its value in relation to the law under which he is operating. Due weight was given to the number of days on which he successfully performed services for the State as a protector; the number of cases which he successfully prosecuted during the fiscal year; the costs of recovery in each case, also the performance of his duties in serving warrants, subpoenas, etc., defined under the "powers of game protectors," as provided in section 169.

RECOMMENDATIONS

Among the more important recommendations that I wish to submit, is, as I have stated before, an increase in the protective force to at least 200 men.

Guides' License

A guides' license similar to the Maine guides' license is recommended, as I believe this would effectually stop some of the illegal killing of deer in the Adirondack mountains, particularly if there was a penalty attached providing that a licensed guide who violated or countenanced a violation of our Conservation Law relating to fish and game, would be disqualified as a guide for a period of at least one year. This should be controlled by the Commission. The law should provide that all persons who wish to guide should make an application to this Department, and in said application should give the name, the home address, age, where the applicant was born, length of time he has resided in the State, if a resident of the State, length of time he has guided, occupation, whether he wishes to guide for inland fishing, or whether he wishes to guide for forest hunting, whether he is competent to handle a boat or canoe, pilot parties through an unblazed forest, care of camp fires, extinguishing of the same, whether he is a naturalized citizen, and whether a taxpayer in the State.

Fishways and Dams

It is a well established fact that certain species of game fish found in the waters of the State seek the deeper waters during the winter months, and therein hibernate; and in almost every

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instance such waters are found in the near proximity of dams and fishways on dams. It has been the custom of the fishermen to fish and take large numbers of our game fish during the early fall when the fish seek the deeper waters at the foot of the dam, Therefore I would respectfully recommend that a provision of law should be enacted forbidding fishing within fifty rods of any dam in the State. This law now applies to dams which have fishways. It should also apply to the dams which have no fishway.

Expenses of Protectors

The law provides at the present time that a State game protector is entitled to the sum of $600 per annum for his necessary expenses while in the performance of his duty in protecting the wild life of the State. This has been found insufficient, and in a great many instances protectors have been unable to work a full month on the $50 allowed by law. Therefore, I feel that in recommending an increase of the expense account for protectors from $600 to $900 a year, this would be the means of increasing the efficiency of the protective force. I also recommend increasing the expense account of the division chief protectors from $750 a year to $1,000 a year.

Deer

As stated before, owing to the efficient protection given to the deer, and the so-called buck law, the deer have rapidly increased throughout the whole State. The Department has had many claims for damages done by deer in counties in which there is no open season. I, therefore, believe and recommend that there should be an open season for deer throughout the whole State, from October 1st to November 15th.

License for Fur-Bearing Animals

There have been numerous requests to the Department for a license to possess for propagation and fur farming different species of our fur-bearing animals. As the law stands at the present time, the only fur-bearing animal for which the Commission grants a license to possess during all periods of the year, is the skunk. I would respectfully recommend that a law be enacted along similar lines allowing the possession of marten, mink, muskrat, raccoon and sable.

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Lake Trout

At the present time the season when lake trout can be taken is from April 1st to December 31st. This season is a mistake, and should be amended so as to provide an open season on lake trout from April 1st to September 30th, except in Lakes Erie and Ontario, where the season as provided at the present time is proper, being from December 31st to October 31st, and except in Lake George, where the season should remain as it is at the present time.

Combination Hunting, Fishing and Trapping License

During the time that the law was undergoing codification, it was the sentiment of some of the codifiers that there should be a combination hunting, fishing and trapping license. I think that the sentiment for such a license is growing throughout the State. The argument is put forth that the hunters of the State are paying into the State treasury over $200,000 a year for hunting licenses, which goes to support the hatcheries and the game farms; but the hook and line fishermen of the State do not contribute one cent. This seems to be unjust, and I would therefore submit for your consideration the advisability of a law which would provide for a combination hunting, fishing and trapping license, at the same price as now charged for the combination hunting and trapping license, exempting women and minors under the age of sixteen. This would provide a revenue which could be used in stocking the streams with fish and the covers of our State with game birds.

Spearing and Setlines

The Department has had a great many requests for a license to spear, also a license to use a setline. I am of the opinion that a law should be enacted providing for both such licenses. The spearing license should provide for the taking of certain deleterious fish. A tag could be issued with the license, corresponding with the tag which is issued by this Commission with our netting licenses. Said tag should be placed on the handle of the spear, so that it would be very easy for a protector to know, when a party was found spearing, if he was in possession of the necessary license. I am assured by the fish culturist that the taking

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of the deleterious fish would work to the benefit of our more valuable game fish, and would meet a popular demand.

A similar license could be granted allowing a person to use a setline, and providing for a tag to be attached to the line. This would not only provide a revenue for the State, but what is more important, control the method of taking fish which is now prohibited, and which there is a demand for.

Game Farms

The popularity of the pheasant is increasing at the present time. Only the male bird can be taken during Thursdays in October. In justice to the sportsmen of the State, who contribute largely to the support of this Commission, through payment for hunting licenses, I believe that there should be additional game farms, and I respectfully submit this recommendation for the Commission's consideration.

Taxidermists' License

It seems to be the consensus of opinion of the sportsmen of the State that there should be a taxidermists' license, under the supervision and control of the Conservation Commission. Experience has shown that there are some taxidermists who make it a practice to accept birds for mounting for which there is no open season provided, also to accept game birds which have been killed illegally during the close season. If this was controlled by a license issued by the Conservation Commission, it would tend to put a stop to such illegal practices, providing there was a penalty, and also a provision of law that the Commission could use its discretion in cancelling a taxidermist's license if the possessor had been guilty of a violation of the Conservation Law. I would respectfully recommend that the Commission use its best endeavors to pass a law providing for the licensing of taxidermists.

The Federal Migratory Bird Law

Whereas the Department of Agriculture has duly prepared suitable regulations to give effect to the provisions of the Federal Migratory Bird Law, and after the preparation of the said regulations has caused the same to be made public and has allowed a period of three months in which said regulations might be exam-

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ined and considered before final adoption and has permitted public hearings thereon, and whereas the Department of Agriculture has adopted the regulations and caused the same to be engrossed and submitted to the President of the United States for approval, and the same were proclaimed and signed by Woodrow Wilson, President of the United States, the 1st day of October, 1913, and as said rules and regulations conflict with the Conservation Law in relation to the fish and game of the State of New York, I would, therefore, respectfully recommend that the laws of New York State be amended to conform with the Federal statute giving protection to migratory birds.

Game Sanctuaries or Refuges

I am informed by the Superintendent of Forests that there is within this State a number of tracts of land under the control of the Land Board, consisting of abandoned farms. Such lands could be readily used for game and bird refuges or sanctuaries. This work has been taken up by other States with good results, as it provides a refuge in which birds and quadrupeds which are protected by law can breed without being molested. The law should be so drafted that it will set aside lands owned by the State in charge of the Land Board, forbidding all hunting or trapping thereon at any period of the year, and should provide also for rules and regulations for properly posting said sanctuaries along the boundaries, so as to give due notice to all persons who are not familiar with the fact that the land has been set aside for game protection, and that hunting or trapping thereon at any period of the year was forbidden. This would meet a long-felt want, and would be the means of protecting our game during the breeding season. The game would naturally overflow from the sanctuaries, stocking the surrounding territory. It would also meet the recommendations of the State League, who recently passed a resolution asking that $10,000 be set aside each year for the purchase of land for game and bird refuges, and that the lands which are abandoned farms and now under the control of the Land Board be placed under the control of the Conservation Commission. The idea of sanctuaries could be worked out without any large cost to the State.

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Feeding of Wild Game

In addition to cutting and stacking hay in the beaver meadows for the feeding of deer during the more severe winter period, the Commission fed a large number of wild ducks in different parts of the State, particularly in the vicinity of Sodus bay. I believe I could not convey in a more intelligent manner the splendid work this Commission is doing than to quote the following letter from one of our State game protectors who was instructed to take charge of the feeding:

"A number of pictures of ducks wintering in this vicinity have been taken. People in these parts never saw such a sight in years. I really believe the department by feeding the birds have saved thousands of ducks up to this time. I have found fourteen dead ducks, including one canvas-back, two redheads and eleven blue-bills. I never saw ducks so poor in all my life as they were. There is one hole out in the bay which I have to walk to which is inhabited by from 600 to 700 wild ducks. At first they were wild when I attempted to approach them, but they have become accustomed to me and know me as a friend, because I bring them much needed food. Now they follow the pails which they see me carrying all around the hole and swim after me wherever I go and wait for me to put out the food for them. In this particular place the water is quite deep, and I at first made them dive for it. But I thought I would try placing the grain on the edge of the ice and the plan worked fine. Now I can feed entirely in this way. After placing the food on the ice you can see now from 300 to 400 ducks out on the ice at one time feeding like flocks of domestic ducks, and they don't have to use up their strength trying to get their food. This flock is composed of canvas-backs, redheads and blue-bills. I tried feeding cracked corn, but gave it up as wheat proved more satisfactory."

THE FEDERAL MIGRATORY BIRD LAW

Resolutions endorsing the McLean bill for Federal protection of migratory game and insectivorous birds in the United States were adopted by the Conservation Commission.

The preamble recites that in order to conserve game this State spends almost $300,000 annually, twice as much as any other

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State in the Union. Two years ago this State took the advanced step of prohibiting the sale of any game bird or animal. Last year 200,000 sportsmen took out hunting licenses, and this army is back of the McLean bill, the resolutions assure Congress.

The New York Commission recognizes the McLean bill as "an urgently needed Federal measure for the more effective conservation of the migratory bird life in the United States." And, "appreciating that its enactment would not only improve protective conditions throughout the country, but would also greatly simplify the problems of protection in New York State and assist this Commission in its work of promoting the preservation of insectivorous birds, and especially of perpetuating the game bird species which visit this State; therefore, it is the sense of this Commission that this great conservation measure should be promptly enacted into law. This Commission further pledges its support to the plan embodied in the McLean bill for the cooperation of the several States with the Federal Government for the more effective protection of bird life."

STATE GAME FARM

The work of propagating pheasants for free distribution is being carried on successfully at the New York State game farm at Sherburne.

The State game farm first went into operation four years ago, and since that time its output each year has been substantially increased. During the past season of 1913, which has been one of interest and success, 25,000 eggs were produced and also 5,000 young birds 1,241 applications having been filled for birds and eggs which were sent out for distribution. With the annual maintenance of $5,000, the farm produced at market value $30.000 worth of birds and eggs.

Everything at the farm is in first-class condition. We have greatly increased our number of breeding stock, which are in perfect health, and we will be in shape to send out a much larger number of eggs next spring for distribution than ever before. The distribution of eggs is made from the State game farm during the months of May, June and July. Such distributions are sent to

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sportsmen and farmers who have made proper application to the Conservation Commission, at Albany, N. Y., requesting that such allotments be made to them.

With each allotment of eggs is sent a report to be filled out by the applicant which is to be returned to the Conservation Commission to ascertain the number of eggs received, the number of birds hatched, also the number of birds reared to maturity for liberation; and the average results of the returned reports show that about 50 per cent. of the birds were reared to maturity, which is considered excellent.

It is pleasing to see the same applicants coming back each year for their regular allotment of eggs, which goes to show the manifest interest the farmers and sportsmen have taken in such distributions; and with their aid and a sufficient number of eggs the State could be completely populated with pheasants. It is of interest to note the popularity of the distribution of birds and eggs throughout the State, and the interest that the farmers and sportsmen have taken in the propagation of the same, taking into consideration that during the year of 1912, 4,204 applications were made to the Conservation Commission for allotments of birds and eggs.

The birds that are sent out from the farm for distribution are raised under the most natural conditions, having never been within a pen or yard of any kind and are practically the same as wild birds, being allowed to run at large with the mother, a common barn-yard hen, from the time they are hatched. Most of the young birds are reared a mile from habitation and with their foster mothers take the advantage of all the neighbors' adjoining farms.

When these birds are about half grown, at which time they are fully able to care for themselves, they are trapped up and sent out for distribution. The distribution of birds is made from the farm during the months of July, August and September. Each allotment of birds is carefully packed and sent out from the farm to the applicant with full instructions as to their liberation. About a thousand baskets were shipped from the farm this past season, and out of this number the reports show that only one bird had died while in transit.

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The Chinese ring-neck pheasants which are being reared at the State game farm are raised from stock that originally came from Oregon, where these birds were first introduced over sixty years ago.

The practicability of stocking the State of New York with pheasants has been fully demonstrated in many of its sections and there is today an open season for the shooting of these birds in forty-one counties. From these same counties where there has been an open season for several years good authorities state that the supply of birds has increased and that the notable increase of the pheasants throughout the State can be attributed to the results of the supply from the game farm at Sherburne.

The pheasant, therefore, daily assumes a growing importance as a game bird of the future. It is the most prolific game bird that we have; it is hardy; it furnishes good sport, and when it is killed it supplies a good meal for a small family. The cock birds weighs from three and one-half to four pounds. I believe more attention should be given in the future to propagating and distributing pheasants. In no other way can bird shooting in a large part of New York State be enjoyed.

NETTING LICENSES

The statistical table of the amounts collected for netting licenses for the fiscal year beginning October 1, 1912, to September 30, 1913, shows a substantial increase over the preceding year. This was brought about by an enactment of law which provided for the issuing of licenses for the taking of deleterious fish, under the direction of a Superintendent of Inland Fisheries.

I believe that the law should be so amended as to allow the taking of deleterious fish from all the waters of the State, except those which are inhabited by trout, or where it would work a direct injury to the hook and line fishing. In the vicinities where netting has been allowed, all the reports available show that the public have been greatly in favor of the same, and that a bountiful supply of fish for table use has been obtained, where heretofore it was impossible to get a supply of the cheaper food

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fish. Moneys have been put into circulation; employment has been given, and the Commission should feel pleased with what it has done relative to satisfying the hook and line fishermen, and meeting a demand for the working out of a method whereby certain deleterious fish could be taken. Such fish overrun practically all the waters of the State, and certainly work to the detriment of our so-called game fishes.

Wherever the Superintendent of Inland Fisheries has been in doubt relative to the granting of licenses in certain waters, the State Fish Culturist has been appealed to, and he has been of great assistance in determining in just what waters it was advisable to allow the taking of fish by the method of netting.

In the years past it was held that the carp had no value as a food fish; but recently there has been a good market for this fish, and the licensed netters have derived a substantial income from the sale thereof. It has been reported to the Commission by fishermen who have taken carp under their netting licenses from the Hudson river, that they have been able to get eighteen cents a pound in New York for the carp. Formerly the Hudson river was swarming with this species of fish, but at the present time they are not as abundant, owing to the large number which have been taken. This works to the benefit of the finer grades of fish, and the method of taking should be extended, as I have stated before, to all the waters of the State, with the exceptions as herein specified.

In view of the value of food fish to the public, especially the coarse fish which should not be held in reservation for the hook and line fishermen, I will offer the following recommendations:

For a sturgeon line 400 feet and under in length, the fee should be $1.

For a sturgeon line over 400 feet, up to 800 feet, the fee should be $2.

For sturgeon line over 800 feet, up to 1,200 feet, the fee should be $3.

The hooks on a sturgeon line should be two feet apart.

The hooks on a setline should be two feet apart.

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LICENSED NETS USED AND FEES PAID OCTOBER 1, 1912, TO SEPTEMBER 30, 1913.

	Fyke	Scap	Gill	Seine	Stake	Row, sail or power boat	Trap	
Hudson river, Delaware river, Rondout creek	371	166	103	67	22	.....	.....	$3,691 78
Lake Ontario	....	....	....	....	....	66	9	1,150 56
Lake Erie	....	....	....	....	....	68	34	2,508 50
Chaumont bay	182	1	11	1	....	.....	154	1,272 30
Otsego and Cayuga lakes	....	....	6	23	....	.....	.....	213 62
Nets for taking deleterious fish	489	30	....	55	....	.....	221	5,208 40
Minnow net licenses, 230								761 66
Sturgeon set line licenses, 300								312 30
Eel weirs and eel pots, 16								283 00
Machine traps Niagara river, 7								140 00
Niagara river scaps, 5								5 00
Sturgeon gill nets special, 4								60 00
Total								$15,605 12

Respectfully submitted,

LLEWELLYN LEGGE,

Chief Protector.

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SECTIONS OF THE CONSERVATION LAW VIOLATED FROM OCTOBER 1, 1912, TO SEPTEMBER 30, 1913

COUNTY	Rule 1	Rule 1-a	152	153	155	170	176	177	178	180	181	185	186	189	190	191	192	193
Albany							5	1				6						
Allegany							7					9						
Broome							22	2	1	1		5						
Cattaraugus							4					18						
Cayuga							5	1			3	5						
Chautauqua		2			1		10	2				9	1					
Chemung												9						
Chenango							3	1				5						
Clinton								5				10				4		4
Columbia						2	11					12						
Cortland												5						
Delaware							14	5	1			27						
Dutchess												4						
Erie							30	3	3			13				2		
Essex							5	2				13			1	1		6
Franklin			1	6			6	1				6			13	6		8
Fulton	1	2					12					16						2
Genesee							8					5						
Greene							11	4				5						
Hamilton							3					3			3	4		10
Herkimer				3			6	2				19			3			2
Jefferson							9		1			20						
Kings									2			2						
Lewis							7					15			1	1		2
Livingston							17					17						
Madison							12				1	19						
Monroe							24	3				18				1		
Montgomery		8					8	2		1		5						
Nassau									1			30						
New York									24			1					1	
Niagara							4		1			6						
Oneida		1					12					35			1	1		
Onondaga							44	1				35						
Ontario							5	7	1			5						
Orange							18	4				3						
Orleans							3					5						
Oswego							9					21						
Otsego							10	1				3						
Putnam												4				1		

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SECTIONS OF THE CONSERVATION LAW VIOLATED FROM OCT. 1, 1912, TO SEPTEMBER 30, 1913 — (*Continued*)

COUNTY	195	196	198	199	200	201	211	212	213	214	216	217	219	221	222	230	231	232
Albany		4															1	
Allegany		4	1	4			2			2							1	
Broome	2	3		2						2							2	1
Cattaraugus				7	2	4				1			1					
Cayuga		7					1			3			1		1			
Chautauqua		5		1			1			1	4						1	1
Chemung	1	1		2			1			1								
Chenango	3	4	1			2	1											1
Clinton		2				1												1
Columbia		3	3	1						2						3	2	
Cortland		1														3		
Delaware	4		5	1		7					1			1			2	2
Dutchess	1	1											4					
Erie	1	3	1	2						2	1		10					
Essex			1	5		3				1			17			1	3	16
Franklin	2	2	1			1				1							1	2
Fulton	1	5											1			1		1
Genesee		1				1				2			1					
Greene		1	3	1														1
Hamilton			1			1							2					3
Herkimer		1	2	1		1	4			1		1						2
Jefferson	1		1	6	1	5	1						2				2	
Kings													1					
Lewis						2				1								3
Livingston		5				1	5			5			3					
Madison		2		1		2				1							1	
Monroe		2								1			5					
Montgomery	5	2	2	1					1	1			1					1
Nassau	1								1				5					
New York													7					
Niagara																		
Oneida	2	5	2	3		10	1						3				1	1
Onondaga		12	4			2	1			4			11				1	1
Ontario										4			1					
Orange		2											2				1	
Orleans		1				1							1	1				
Oswego		5	4		1	1	1			2								
Otsego	1	3	1	3		2	1			1			1	1				
Putnam	1	4				2							1					
Queens													4					
Rensselaer		2				3							4			1	1	

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SECTIONS OF THE CONSERVATION LAW VIOLATED FROM OCT. 1, 1912, TO SEPTEMBER 30, 1913 — (*Continued*)

COUNTY	234	236	237	240	241	244	245	247	249	253	254	255	256	257	264	270	273
Albany												1				2	
Allegany																	
Broome		2									2	5				5	
Cattaraugus								2				2		2			
Cayuga								1				2				3	
Chautauqua								2		2	2	1				16	
Chemung																	
Chenango												3					
Clinton			1														
Columbia								1									
Cortland										1						2	
Delaware								2			4	4				7	
Dutchess								1								1	4
Erie		1					4	1			3			4		3	
Essex			4		2												
Franklin							1										
Fulton																	
Genesee							1										
Greene												5				1	
Hamilton																	
Herkimer		1									2	3					
Jefferson																	
Kings				1													
Lewis											1						
Livingston			2							4							
Madison											2	10				3	
Monroe																2	
Montgomery												1				1	
Nassau			1														
New York				6										12			
Niagara											1					1	1
Oneida			1			1		1			5	2	1		1	3	
Onondaga		4								2	2	7				4	
Ontario										1							
Orange																2	
Orleans								2									9
Oswego							3			3							
Otsego										1							1
Putnam							1										
Queens																	
Rensselaer							3					1					

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Richmond																										
Rockland																										
St. Lawrence					1																					
Saratoga																										
Schenectady																										
Schoharie					1																					
Schuyler																										
Seneca																										
Steuben			1																							
Suffolk																										
Sullivan																										
Tioga																										
Tompkins																										
Ulster					3																					
Warren																										
Washington																										
Wayne																										
Westchester																										
Wyoming																										
Yates					1																					
Total	3	8	15	8	2	1	20	14	2	19	44	69	1	18	1	79	15									

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SECTIONS OF THE CONSERVATION LAW VIOLATED FROM OCT. 1, 1912, TO SEPTEMBER 30, 1913 — (*Concluded*)

COUNTY	274	275	276	277	282	318	321	323	350	362	365	372	373	380	252	197	Total
Albany					1												21
Allegany																	30
Broome					1							1	2				61
Cattaraugus																	43
Cayuga					2												35
Chautauqua			4														66
Chemung																	15
Chenango																	24
Clinton		2													1		31
Columbia		4												4			48
Cortland																	12
Delaware																	87
Dutchess																	16
Erie																	87
Essex																	81
Franklin																	58
Fulton																	42
Genesee																	19
Greene	1															1	33
Hamilton																	31
Herkimer		1															55
Jefferson																	49
Kings							19										25
Lewis																	33
Livingston				2													61
Madison																	54
Monroe																	56
Montgomery														2			42
Nassau							3										42
New York							25					1	11				88
Niagara				3													17
Oneida																	93
Onondaga		1															135
Ontario																	27
Orange																	32
Orleans																	23
Oswego										1							51
Otsego		2													2		34
Putnam																	14
Queens							6										18
Rensselaer																	23

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Richmond									8																						20
Rockland			2																												29
St. Lawrence																															90
Saratoga			1			1						1				3															48
Schenectady																															21
Schoharie																															14
Schuyler																															7
Seneca																															16
Steuben																5															77
Suffolk			1						2		1																				52
Sullivan																															64
Tioga																															45
Tompkins			1			1																									32
Ulster																															59
Warren			2																												68
Washington						1																									41
Wayne																															26
Westchester																															93
Wyoming																															16
Yates			1																												44
Total		1	19	4	5	7	1	63	1	1	1	8	2	13	7	4	1	2,674													

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REGULAR PROTECTORS

DIVISIONS	Number of men in division	Total number of actions	Average number of cases per protector	Gross recovery	Average recovery per case	Total cost	Average cost per case
Metropolitan and Long Island Division, J. T. McCormick, Division Chief	15	363	24	$6,032 25	$16 62	$620 45	$1 71
Southern Division, W. C. Farley, Division Chief	16	325	20	4,978 02	15 31	363 72	1 12
St. Lawrence Division, F. C. Mullin, Division Chief	13	215	17	4,167 01	19 38	467 90	2 18
Central New York Division, W. H. Weston, Division Chief	10	207	21	4,121 30	19 91	655 48	3 16
Allegany Division, C. R. Stapley, Division Chief	8	204	26	2,729 20	13 38	176 75	87
Hudson Division, C. E. Lee, Division Chief	8	166	21	3,090 05	18 61	376 70	2 27
Ontario Division, J. A. Colloton, Division Chief	9	165	18	3,950 55	23 94	357 65	2 17
Eastern Adirondack Division, R. B. Nichols, Division Chief	14	163	12	2,864 10	17 57	312 90	1 92
Western Division, F. W. Hamilton, Division Chief	12	157	13	3,578 60	22 79	338 01	2 15
Northern Adirondack Division, B. A. Cameron, Division Chief	10	144	14	1,962 94	13 63	465 90	3 23
Southern Adirondack Division, J. E. Leavitt, Division Chief	7	125	18	2,375 45	19 00	261 20	2 09
Eastern Division, C. A. Johnston, Division Chief	6	91	15	1,406 20	15 45	345 84	3 80

Average recovery	$17 74
Average cost per case	2 03

SPECIAL PROTECTORS

DIVISIONS	Number of men in division	Total number of actions	Average number of cases per protector	Gross recovery	Average recovery per case	Total cost	Average cost per case
Metropolitan and Long Island Division, J. T. McCormick, Division Chief	6	13	2	$172 00	$13 23	$14 40	$1 11
Southern Division, W. C. Farley, Division Chief	1	11	11	120 00	10 91	12 25	1 11
St. Lawrence Division, F. C. Mullin, Division Chief	5	8	2	228 00	28 50	44 75	5 59
Central New York Division, W. H. Weston, Division Chief	11	83	8	1,494 20	18 00	138 25	1 67
Allegany Division, C. R. Stapley, Division Chief	1	11	11	183 30	16 66	21 10	1 92
Hudson Division, C. E. Lee, Division Chief	2	2	1	42 50	21 25	4 50	2 25
Ontario Division, J. A. Colloton, Division Chief	9	21	2	480 50	22 80	48 14	2 29
Eastern Adirondack Division, R. B. Nichols, Division Chief	2	7	4	95 00	13 57	8 60	1 23
Western Division, F. W. Hamilton, Division Chief	9	65	7	1,236 95	19 03	189 15	2 91
Northern Adirondack Division, B. A. Cameron, Division Chief	1	30	30	565 15	18 84	46 95	1 57
Southern Adirondack Division, J. E. Leavitt, Division Chief	4	18	5	259 25	14 40	11 50	80
Eastern Division, C. A. Johnston, Division Chief	8	28	4	591 25	21 12	55 30	1 98

Average recovery	$18 41
Average cost per case	2 00

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REPORT OF THE CHIEF GAME PROTECTOR

SPECIAL PROTECTORS	Actions brought	Recovery	Court costs	Constable fees	Attorneys' fees	Other charges	Total costs
Bert J. Anson	1	$17 00	$2 00	.....	.....	.....	$2 00
H. T. Ashton	2	38 75	3 75	.....	$5 00	.....	8 75
Louis Bardo	2	31 80	1 80	.....	.....	.....	1 80
Claude Bentley	3	60 00	2 79	.....	.....	.....	2 79
John D. Black	1	11 00	1 00	.....	.....	.....	1 00
J. C. Blunck	2	46 50	3 70	.....	.....	.....	3 70
Frank Bond	10	293 00	8 00	.....	.....	.....	8 00
George Brier	12	334 95	15 35	.....	.....	.....	15 35
James Bullard	17	194 00	14 70	$2 30	.....	.....	17 00
W. H. Bundenthal	23	494 75	43 45	1 50	15 00	.....	59 95
Andrew J. Clark	2	61 50	1 50	.....	.....	.....	1 50
James Dickinson	1	101 10	1 10	.....	.....	.....	1 10
Frank Esquirrel	1	15 00	2 65	2 95	.....	.....	5 60
Edward Everett	4	40 00	4 60	6 15	.....	.....	10 75
Bert Everingham	14	247 00	25 00	3 50	.....	.....	28 50
J. J. Farrell	2	125 00	1 00	.....	.....	.....	1 00
Ernest Fish	1	26 00	1 00	.....	.....	.....	1 00
W. R. Floyd	9	78 00	6 95	.....	.....	.....	6 95
Arthur M. Gage	3	43 00	7 90	.....	.....	$2 50	10 40
E. W. Gauding	10	105 20	5 20	.....	.....	06	5 26
G. K. Gill	2	20 00	.....	.....	.....	.....	.....
J. D. Goodermote	2	30 00	4 30	.....	.....	.....	4 30
Jas. Graham	2	75 00	.....	.....	.....	.....	.....
Albert Heck	3	38 25	8 25	.....	.....	.....	8 25
John H. Hohman	8	172 50	12 50	10 00	.....	.....	22 50
Charles M. Holts	6	35 00	15 00	1 55	15 00	.....	31 55
F. J. Maloney	11	183 30	13 55	7 55	.....	.....	21 10
Chas. F. Mandigo	1	20 00	4 85	3 00	10 00	.....	17 85
Philip Manecke	2	.....	.....	.....	.....	.....	.....
Joseph E. Moon	1	26 55	1 55	.....	.....	.....	1 55
John Moriarity	2	26 00	1 00	.....	.....	.....	1 00
Leon McIntyre	2	36 00	1 00	.....	.....	.....	1 00
C. H. Nesley	11	281 00	8 00	6 00	.....	.....	14 00
John L. Perry	1	11 00	1 00	.....	.....	.....	1 00
Sam M. Perry	11	120 00	10 75	1 50	.....	.....	12 25
Fred E. Pitts	1	71 00	3 10	3 75	13 55	.....	20 40
E. N. Reynolds	1	.....	.....	.....	.....	.....	.....
William A. Ruth	1	.....	.....	.....	.....	.....	.....
H. C. Saxton	1	31 00	1 00	.....	.....	.....	1 00
David Simoncini	2	24 00	4 00	.....	.....	.....	4 00
E. G. Smith	2	33 10	3 10	.....	.....	.....	3 10
George Smith	2	10 00	.....	.....	.....	.....	.....
L. J. Spahn	1	25 00	2 00	5 75	.....	.....	7 75
L. L. Hamilton	2	24 00	4 00	.....	.....	.....	4 00
D. J. Schroll	1	15 00	2 65	2 95	.....	.....	5 60
Fred Schmidt	2	34 10	.....	.....	.....	.....	.....
Solomon Squier	1	25 65	65	.....	.....	.....	65
Albert Stadlmeir	15	245 00	31 15	.....	20 00	.....	51 15
J. F. Stark	1	26 00	1 00	.....	.....	.....	1 00
W. M. Stearns	30	565 15	46 95	.....	.....	.....	46 95
Robert Suor	25	519 30	50 10	8 70	30 00	.....	88 80
A. M. Tanner	3	75 00	4 50	.....	.....	.....	4 50
A. S. Temole	6	69 00	7 60	.....	.....	.....	7 60
Adelbert VanPatten	1	21 00	1 00	.....	.....	.....	1 00
Frank P. Viele	3	38 25	8 25	.....	.....	.....	8 25
J. Frank Weldon	5	81 90	1 90	.....	.....	.....	1 90
Harry Wilcox	4	54 00	4 00	.....	.....	.....	4 00
W. E. Torrey	1	42 50	2 50	.....	.....	.....	2 50
L. H. Weed	1	.....	2 00	.....	.....	.....	2 00
Total	297	$5,468 10	$416 64	$67 15	$108 55	$2 56	$594 90

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RESULTS OF ACTIONS

REGULAR PROTECTORS	Fined	Sentences suspended	Jail	Acquittals	John Doe proceedings	Discontinued	Jury disagreed	Total
Thos. H. Allen	14	6	.....	.....	.....	.....	.....	20
A. B. Allison	9	.....	.....	.....	.....	.....	.....	9
Wm. J. Andre	21	.....	.....	.....	.....	.....	.....	21
Benj. M. Bailey	42	16	3	5	1	.....	.....	67
J. E. Ball	2	.....	.....	.....	.....	.....	.....	2
Joseph Barry	24	.....	.....	.....	.....	.....	.....	24
F. Bauernschmidt	19	6	1	.....	.....	.....	.....	26
Carl A. Beebe	21	2	2	.....	.....	.....	.....	25
Wm. G. Bell	17	1	1	.....	.....	.....	.....	19
F. H. Bellinger	6	.....	.....	.....	.....	.....	.....	6
D. H. W. Benson	44	5	.....	1	.....	.....	.....	50
C. A. Bissell	1	1	.....	2	.....	.....	.....	4
Dennis Bump	8	.....	.....	1	.....	.....	.....	9
Wm. H. Burnett	10	.....	1	.....	.....	.....	.....	11
L. H. Burnside	8	.....	.....	1	1	.....	.....	10
P. F. Butler	7	3	.....	.....	.....	.....	.....	10
Wm. J. Butler	7	.....	.....	.....	3	.....	.....	10
Albert E. Buyers	.....	.....	.....	.....	.....	.....	.....	.....
M. J. Callahan	5	.....	.....	.....	.....	.....	.....	5
M. L. Callaghan	16	2	.....	.....	.....	.....	.....	18
B. A. Cameron	5	1	.....	.....	.....	.....	.....	6
Z. T. Cater	18	.....	.....	.....	.....	.....	.....	18
William R. Clark	20	.....	.....	.....	.....	.....	.....	20
William D. Cloyes	19	.....	.....	.....	.....	.....	.....	19
James A. Colloton	8	.....	.....	.....	.....	.....	.....	8
A. J. Conkling	5	1	.....	.....	.....	.....	.....	6
E. C. Cross	59	.....	.....	1	.....	2	.....	62

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H. B. Cruikshank	19	2	.....	.....	2	.....	.....	23
C. C. Culver	29	.....	1	.....	2	.....	1	33
Harry J. Curry	29	.....	.....	1	.....	.....	.....	30
George Davis	2	.....	.....	.....	.....	.....	.....	2
William L. Delaney	3	1	.....	.....	.....	.....	.....	4
Jos. M. DeSilva	69	2	.....	2	.....	.....	1	74
Fred DeWitt	43	2	1	1	.....	.....	.....	47
H. C. DeWolf	10	.....	.....	.....	.....	.....	.....	10
J. Dollinger	12	.....	.....	.....	.....	.....	.....	12
C. T. DoVille	13	.....	.....	.....	1	.....	.....	14
Elton B. Dowling	24	1	.....	3	.....	.....	.....	28
Calvin Emerick	6	3	1	2	.....	.....	.....	12
William C. Farley	.....	.....	.....	.....	.....	.....	.....	.....
Jas. S. Ford	12	.....	.....	.....	10	.....	.....	22
C. J. Franklin	5	.....	.....	.....	.....	.....	.....	5
Edmund Gallagher	29	2	.....	2	.....	3	.....	36
E. H. Gammon	31	1	.....	2	.....	.....	.....	34
J. A. Ginder	15	11	.....	1	.....	.....	.....	27
E. C. Gleason	30	.....	.....	1	1	.....	.....	32
Theo. Godbout	3	.....	.....	.....	1	.....	.....	4
R. Hume Grant	5	.....	.....	.....	.....	.....	.....	5
Harry P. Haff	18	.....	.....	.....	.....	.....	.....	18
F. W. Hamilton	30	.....	.....	.....	2	.....	.....	32
Jay Hand	21	.....	.....	.....	.....	.....	.....	21
Austin G. Harris	24	.....	.....	.....	.....	.....	.....	24
Miles Hazelton	28	.....	.....	.....	2	.....	.....	30
Henry Hefferman	35	1	.....	1	.....	2	.....	39
William Herrick	25	.....	.....	.....	.....	.....	.....	25
Edgar Hicks	38	.....	.....	.....	.....	.....	.....	38
J. H. Hildreth	2	.....	.....	.....	.....	.....	.....	2
C. M. Hiller	2	.....	.....	.....	.....	.....	.....	2
J. F. Hirsch	14	3	.....	.....	.....	.....	.....	17
William A. Hoagland	21	.....	.....	1	3	.....	.....	25
William C. Hodge	5	.....	.....	.....	.....	.....	.....	5
Herbert A. Horton	7	.....	.....	.....	.....	.....	.....	7

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RESULTS OF ACTIONS — (*Continued*)

REGULAR PROTECTORS	Fined	Sentences suspended	Jail	Acquittals	John Doe proceedings	Discontinued	Jury disagreed	Total
G. B. Howland	4	.....	.....	.....	.....	.....	.....	4
Ross N. Hudson	3	.....	.....	.....	.....	.....	.....	3
William H. Irons	4	.....	.....	2	.....	1	.....	7
Jos. Jenkins	9	1	1	2	3	.....	.....	16
C. A. Johnston	11	.....	.....	4	.....	.....	.....	15
John H. Kane	21	.....	.....	3	2	.....	.....	26
Dennis E. Keefe	15	.....	.....	.....	.....	.....	.....	15
W. Kidd	4	1	.....	.....	.....	.....	.....	5
C. J. Kirby	27	1	1	1	2	.....	.....	32
E. J. Knapp	24	2	2	3	.....	.....	.....	31
Peter Knobloch	8	.....	.....	.....	.....	.....	.....	8
John E. Leavitt	.....	.....	.....	.....	.....	.....	.....	.....
Chas. E. Lee	.....	.....	.....	.....	.....	.....	.....	.....
Morgan B. Leland	18	.....	.....	.....	1	.....	.....	19
D. W. Linnehan	3	.....	.....	.....	.....	.....	.....	3
Richard F. Maher	9	.....	.....	1	.....	.....	.....	10
J. H. Mallette	10	4	1	.....	.....	.....	.....	15
Thos. E. Marsh	9	1	1	.....	3	.....	.....	14
C. H. Masten	24	.....	.....	.....	.....	1	.....	25
C. J. Miles	13	.....	.....	6	.....	.....	.....	19
L. S. Morris	32	.....	.....	.....	.....	.....	.....	32
D. E. Moxley	13	.....	.....	.....	.....	.....	.....	13
Frank C. Mullin	.....	.....	.....	1	.....	.....	.....	1
M. C. Murphy	35	3	.....	.....	2	.....	.....	40
J. T. McCormick	2	.....	.....	.....	.....	.....	.....	2
J. J. McDonough	5	.....	.....	1	1	.....	.....	7
W. F. Newell	23	.....	.....	.....	2	.....	.....	25

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R. B. Nichols	3			1				4
J. H. North	7			2				9
Joseph Northup	8							8
E. J. O'Connor	7							7
E. R. Overton	17			1				18
C. H. O'Donnell	17	2	1					20
Leon W. Paxon	5	2						7
A. O. Perkins	14							14
Wallace L. Reed	8	1						9
Charles Riley			2	2				4
W. H. Ronald	3							3
R. W. Schulz				1				1
N. A. Scott	19				2			21
Sherman S. Scott	20	1						21
D. W. Seckington	23	1				1		25
T. J. Sheridan	21	1	1		2			25
Jos. T. Smith	8			1				9
Milton S. Smith	30		1	1				32
Robert Somerville	15			1	4			20
Chas. R. Stapley	27	3						30
Clark M. Stearne	27							27
George E. Sutton	5							5
Edward St. Clair	3			1				4
Samuel S. Taylor	21	2	1					24
F. G. Thomas	19	3		1	2			25
George Travis	48	3						51
C. E. Underhill	30				1			31
John B. Vann	23	1				2		26
Frank Van de Boe	17							17
Per Ver Snyder	12	1			1			14
John H. Wackerman	15	2	1	1				19
John J. Ward	22	1	1					24
R. E. Warren								
Merton Westcott	24	1			2			27
William H. Weston	6	6						12

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RESULTS OF ACTIONS — (*Concluded*)

REGULAR PROTECTORS	Fined	Sentences suspended	Jail	Acquittals	John Doe proceedings	Discontinued	Jury disagreed	Total
C. Wheaton	12	.....	.....	.....	.....	.....	.....	12
John Willis	19	1	.....	2	1	.....	.....	23
O. C. Woolf	14	.....	.....	.....	.....	.....	.....	14
C. G. Worden	27	3	.....	2	.....	.....	.....	32
C. H. Yaple	25	.....	.....	.....	.....	.....	.....	25
Verne A. Zimmer	15	.....	.....	.....	.....	.....	.....	15
Total	2,036	121	25	69	60	12	2	2,325

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SUMMARY OF RECOVERIES AND EXPENSES

	Fines and penalties	Expenses of prosecution
Regular protectors	$41,255 67	$4,742 50
Special protectors	5,468 10	594 90
Total	$46,723 77	$5,337 40

SUMMARY OF RESULTS OF ACTIONS BROUGHT

	Regular protectors	Special protectors	Total
Fined	2,036	269	2,305
Sent to jail	25	3	28
John Doe proceedings	60	1	61
Sentence suspended	121	15	136
Acquitted	69	9	78
Discontinued	12	.....	12
Jury disagreed	2	.....	2
Total	2,325	297	2,622

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REPORT OF THE CHIEF GAME PROTECTOR

REGULAR PROTECTORS	Actions brought	Recovery	Court costs	Constable fees	Attorneys' fees	Other charges	Total costs
Thos. H. Allen	20	$174 80	$25 25				$25 25
A. B. Allison	9	144 10	10 10				10 10
William J. Andre	21	430 64	25 14	$3 00			28 14
Benj. M. Bailey	67	621 85	131 20	19 30	$13 00	$5 00	168 50
J. E. Ball	2	53 50	6 75				6 75
Joseph Barry	24	401 00	24 00	7 20	20 00		51 20
Fred Bauernschmidt	26	375 00	4 70				4 70
Carl A. Beebe	25	309 50	20 00	7 40			27 40
Wm. G. Bell	19	267 35	23 45	10 40			33 85
Fred. H. Bellinger	6	145 00	5 00				5 00
D. H. W. Benson	50	851 00	23 40				23 40
Chas. A. Bissell	4	10 00	9 30	18 80	30 00		58 10
Dennis Bump	9	143 00	16 30	4 50	20 00		40 80
Wm. H. Burnett	11	161 45	15 20				15 20
L. H. Burnside	10	98 72	10 57		20 00		30 57
Patrick F. Butler	10	180 00	25 30				25 30
Wm. J. Butler	10	191 10	11 50				11 50
Albert E. Buyers							
M. J. Callahan	5	81 00	4 00				4 00
M. L. Callaghan	18	259 95	28 01				28 01
Byron A. Cameron	6	113 34	7 75	60			8 35
Z. T. Cater	18	256 50	37 35	34 75	30 05		102 15
Wm. R. Clark	20	374 25	29 25				29 25
Wm. D. Cloyes	19	205 15	15 15				15 15
James A. Colloton	8	240 00					
A. J. Conkling	6	88 75	3 75				3 75
E. C. Cross	62	1,139 00	62 15	14 25	15 00		91 40
H. B. Cruikshank	23	290 50	27 45				27 45
Chester C. Culver	33	411 55	33 75	2 00			35 75
Harry J. Curry	30	437 05	23 15				23 15
George Davis	2	53 00	3 00				3 00
Wm. L. Delaney	4	90 00	8 10				8 10
Joseph M. DeSilva	74	1,135 10	61 40	8 35			69 75
Fred Dewitt	47	1,024 50	46 50	10 35	20 00		76 85
H. C. DeWolf	10	733 60	22 45	2 00	20 00		44 45
J. Dollinger	12	212 00	7 00				7 00
Claude T. DoVille	14	263 20	16 00				16 00
Elton B. Downing	28	532 65	53 55	7 00	45 00		105 55
Calvin Emerick	12	122 45	22 95	12 10	20 00		55 05
Wm. C. Farley							
James S. Ford	22	247 00	71 70	12 15			83 85
Chas. J. Franklin	5	155 25	5 25				5 25
Edmund Gallagher	36	531 37	34 10	8 00	49 78		91 88
E. H. Gammon	34	751 50	92 05	31 15	44 54		167 74
J. A. Ginder	27	259 00	69 35	24 80	42 14		136 29
E. C. Gleason	32	551 95	25 50	13 20	10 00		48 70
Theodore Godbout	4	49 00	4 70				4 70
R. Hume Grant	5	72 50	2 50				2 50
Harry P. Haff	18	536 05	30 20	16 85			47 05
F. W. Hamilton	32	1,196 50	22 45				22 45
Jay Hand	21	592 50	22 50				22 50
Austin G. Harris	24	469 75	15 00				15 00
Miles Haselton	30	489 15	36 05		27 00		63 05
Henry Hefferman	39	543 80	36 55				36 55
William Herrick	25	342 35	19 35				19 35
Edgar Hicks	38	1,217 05	2 05				2 05
Jas. H. Hildreth	2	75 60	60				60
Cyrus M. Hiller	2	26 60	1 60				1 60
Joseph F. Hirsch	17	192 15	10 90	1 25			12 15
Wm. A. Hoagland	25	613 30	56 40	11 00	45 05	23 50	135 95
Wm. C. Hodge	5	74 75	4 75				4 75
Herbert A. Horton	7	72 70	4 65				4 65
George B. Howland	4	103 00	3 00				3 00
Ross N. Hudson	3	42 00	3 00				3 00
Wm. H. Irons	7	77 25	10 55	3 50	25 00		39 05
Joseph Jenkins	16	274 05	22 40	8 35	39 85		70 60
Cassius A. Johnston	15	323 80	46 65	1 45		4 00	52 10
John H. Kane	26	454 65	35 05	4 00	55 00		94 05
Dennis E. Keefe	15	302 55	13 65				13 65
W. H. Kidd	5	46 25	8 35				8 35
C. J. Kirby	32	459 10	44 40	39 20			83 60
E. J. Knapp	31	585 10	65 25	19 85			85 10
Peter Knobloch	8	170 65	10 65				10 65

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REPORT OF THE CHIEF GAME PROTECTOR — (*Concluded*)

REGULAR PROTECTORS	Actions brought	Recovery	Court costs	Constable fees	Attorneys' fees	Other charges	Total costs
John E. Leavitt							
Charles E. Lee							
Morgan B. Leland	19	$381 20	$29 10				$29 10
Dennis W. Linnehan	3	57 65	2 65				2 65
Richard F. Maher	10	268 10	13 00	$20 10	$57 00		90 10
John H. Mallette	15	178 52	28 45	18 61	25 00		72 06
Thos. E. Marsh	14	157 30	17 16				17 16
C. H. Masten	25	479 85	26 75	6 10			32 85
C. J. Miles	19	300 65	24 69	23 36	38 40		86 45
L. S. Morris	32	458 25	23 25				23 25
D. E. Moxley	13	203 50	14 50				14 50
Frank C. Mullin	1						
Michael C. Murphy	40	602 00	35 15				35 15
J. T. McCormick	2	145 00					
J. J. McDonough	7	60 25	11 85	4 60	5 00		21 45
W. F. Newell	25	409 15	26 60	7 90	28 40		62 90
R. B. Nichols	4	47 10	11 50	16 90	10 00		38 40
J. H. North	9	218 50	4 00		6 67		10 67
Joseph Northup	8	125 50	6 00				6 00
E. J. O'Connor	7	129 60	10 70				10 70
E. R. Overton	18	336 05	25 50	7 00	100 97		133 47
Chas. H. O'Donnell	20	395 15	30 45	3 00			33 45
Leon W. Paxon	7	188 75	8 75				8 75
A. O. Perkins	14	187 00	11 00				11 00
Wallace L. Reed	9	170 75	11 45				11 45
Charles Riley	4		6 55	4 00	14 33		24 88
W. H. Ronald	3	69 00	9 00				9 00
R. W. Schulz	1		4 45		10 00		14 45
N. A. Scott	21	394 50	18 45				18 45
Sherman S. Scott	21	281 40	16 40				16 40
D. W. Seckington	25	308 00	33 35	6 25	10 00		49 60
T. J. Sheridan	25	498 85	33 55	5 85	11 30		50 70
Jos. T. Smith	9	173 90	11 55	14 55	8 25		34 35
Milton S. Smith	32	966 00	64 50	16 05	20 00		100 55
Robert Somerville	20	417 50	30 50		10 00		40 50
Chas. R. Stapley	30	303 25	13 25				13 25
Clark M. Stearne	27	740 85	24 25	5 80	30 00		60 05
George E. Sutton	5	60 00	8 00				8 00
Edward St. Clair	4	54 00	16 60	8 45	15 00		40 05
Samuel S. Taylor	24	299 15	31 10	18 15			49 25
F. G. Thomas	25	349 50	31 80	3 20	57 30		92 30
George H. Travis	51	1,083 50	39 65	4 70	10 00		54 35
C. E. Underhill	31	666 80	46 10	12 25	11 55	$20 00	89 90
John B. Vann	26	359 00	31 70				31 70
Frank Van de Boe	17	296 90	15 90	6 00			21 90
Peter Ver Snyder	14	193 80	17 55				17 55
John H. Wackerman	19	191 67	10 10				10 10
John J. Ward	24	259 01	15 70				15 70
Merton Westcott	27	503 70	23 30				23 30
Wm. H. Weston	12	365 00	10 00				10 00
Cleveland Wheaton	12	303 90	10 90				10 90
John Willis	23	457 30	30 75	13 45	107 78	10 00	161 98
O. C. Woolf	14	280 75	10 75		5 00		15 75
C. G. Worden	32	707 60	73 95	3 75	62 15		139 85
Chas. H. Yaple	25	391 55	41 85				41 85
Verne A. Zimmer	15	250 70	12 20			50	12 70
Total	2,325	$41,255 67	$2,847 22	$586 77	$1,245 51	$63 00	$4,742 50

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RESULTS OF ACTIONS.

SPECIAL PROTECTORS	Fined	Sentences suspended	Jail	Acquittals	John Doe proceedings	Discontinued	Jury disagreed	Total
Bert J. Anson	1	.....	.....	.....	.....	.....	.....	1
H. T. Ashton	2	.....	.....	.....	.....	.....	.....	2
Louis Bardo	2	.....	.....	.....	.....	.....	.....	2
Claude Bentley	3	.....	.....	.....	.....	.....	.....	3
John D. Black	1	.....	.....	.....	.....	.....	.....	1
J. C. Blunck	2	.....	.....	.....	.....	.....	.....	2
Frank Bond	10	.....	.....	.....	.....	.....	.....	10
George Brier	12	.....	.....	.....	.....	.....	.....	12
James Bullard	17	.....	.....	.....	.....	.....	.....	17
W. H. Bundenthal	23	.....	.....	.....	.....	.....	.....	23
A. J. Clark	2	.....	.....	.....	.....	.....	.....	2
James Dickinson	1	.....	.....	.....	.....	.....	.....	1
F. Esquirrel	1	.....	.....	.....	.....	.....	.....	1
Edward Everett	4	.....	.....	.....	.....	.....	.....	4
B. Everingham	13	.....	1	.....	.....	.....	.....	14
J. J. Farrell	2	.....	.....	.....	.....	.....	.....	2
Ernest Fish	1	.....	.....	.....	.....	.....	.....	1
W. R. Floyd	6	3	.....	.....	.....	.....	.....	9
A. M. Gage	3	.....	.....	.....	.....	.....	.....	3
E. W. Gauding	8	.....	.....	2	.....	.....	.....	10
G. K. Gill	2	.....	.....	.....	.....	.....	.....	2
J. D. Goodermote	2	.....	.....	.....	.....	.....	.....	2
Jas. Graham	2	.....	.....	.....	.....	.....	.....	2
L. L. Hamilton	2	.....	.....	.....	.....	.....	.....	2
Albert Heck	3	.....	.....	.....	.....	.....	.....	3
John H. Hohman	8	.....	.....	.....	.....	.....	.....	8
Chas. M. Holtz	2	2	.....	2	.....	.....	.....	6

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F. J. Maloney	9	2	.....	.....	.....	.....	.....	11
Chas. F. Mandigo	1	.....	.....	.....	.....	.....	.....	1
Philip Manecke	.....	2	.....	.....	.....	.....	.....	2
Jos. E. Moon	1	.....	.....	.....	.....	.....	.....	1
John Moriarity	2	.....	.....	.....	.....	.....	.....	2
Leon McIntyre	2	.....	.....	.....	.....	.....	.....	2
C. H. Nesley	10	.....	1	.....	.....	.....	.....	11
John L. Perry	1	.....	.....	.....	.....	.....	.....	1
Sam M. Perry	11	.....	.....	.....	.....	.....	.....	11
Fred E. Pitts	1	.....	.....	.....	.....	.....	.....	1
E. N. Reynolds	.....	.....	.....	1	.....	.....	.....	1
William A. Ruth	.....	1	.....	.....	.....	.....	.....	1
H. G. Saxton	1	.....	.....	.....	.....	.....	.....	1
D. J. Schroll	1	.....	.....	.....	.....	.....	.....	1
Fred Schmidt	2	.....	.....	.....	.....	.....	.....	2
David Simoncini	2	.....	.....	.....	.....	.....	.....	2
E. G. Smith	2	.....	.....	.....	.....	.....	.....	2
George Smith	1	1	.....	.....	.....	.....	.....	2
L. J. Spahn	1	.....	.....	.....	.....	.....	.....	1
Solomon Squier	1	.....	.....	.....	.....	.....	.....	1
Albert Stadlmeir	12	2	.....	1	.....	.....	.....	15
J. F. Stark	1	.....	.....	.....	.....	.....	.....	1
William M. Stearns	29	1	.....	.....	.....	.....	.....	30
Robert Suor	21	1	1	2	.....	.....	.....	25
A. M. Tanner	3	.....	.....	.....	.....	.....	.....	3
A. S. Temple	5	.....	.....	.....	1	.....	.....	6
W. E. Torrey	1	.....	.....	.....	.....	.....	.....	1
A. Van Patten	1	.....	.....	.....	.....	.....	.....	1
Frank P. Viele	3	.....	.....	.....	.....	.....	.....	3
L. H. Weed	.....	.....	.....	1	.....	.....	.....	1
J. Frank Weldon	5	.....	.....	.....	.....	.....	.....	5
Harry Wilcox	4	.....	.....	.....	.....	.....	.....	4
Total	269	15	3	9	1	.....	.....	297

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RECORDS OF DIVISIONS, REGULAR PROTECTORS

REGULAR PROTECTORS	Number cases	Recovery	Court costs	Constable fees	Attorneys' fees	Other charges	Total costs
JOHN T. MCCORMICK, DIVISION CHIEF, METROPOLITAN AND LONG ISLAND DIVISION							
T. H. Allen	20	$174 80	$25 25				$25 25
B. M. Bailey	67	621 85	131 20	$19 30	$13 00	$5 00	168 50
F. Bauernschmidt	26	375 00	4 70				4 70
D. H. W. Benson	50	851 00	23 40				23 40
E. Gallagher	36	531 37	34 10	8 00	49 78		91 88
H. P. Haff	18	536 05	30 20	16 85			47 05
Edgar Hicks	38	1,217 05	2 05				2 05
J. H. Hildreth	2	75 60	60				60
H. A. Horton	7	72 70	4 65				4 65
E. J. Knapp	31	585 10	65 25	19 85			85 10
J. T. McCormick	2	145 00					
E. R. Overton	18	336 05	25 50	7 00	100 97		133 47
George E. Sutton	5	60 00	8 00				8 00
J. H. Wackermann	19	191 67	10 10				10 10
J. J. Ward	24	259 01	15 70				15 70
Total	363	$6,032 25	$380 70	$71 00	$163 75	$5 00	$620 45
WILLIAM C. FARLEY, DIVISION CHIEF, SOUTHERN DIVISION							
A. B. Allison	9	$144 10	$10 10				$10 10
L. H. Burnside	10	98 72	10 57		$20 00		30 57
M. J. Callahan	5	81 00	4 00				4 00
W. J. Cloyes	19	205 15	15 15				15 15
H. Curry	30	437 05	23 15				23 15
J. M. De Silva	74	1,135 10	61 40	$8 35			69 75
W. C. Farley							
E. C. Gleason	32	551 95	25 50	13 20	10 00		48 70
R. H. Grant	5	72 50	2 50				2 50
D. E. Keefe	15	302 55	13 65				13 65
M. C. Murphy	40	602 00	35 15				35 15
E. J. O'Connor	7	129 60	10 70				10 70
A. O. Perkins	14	187 00	11 00				11 00
J. B. Vann	26	359 00	31 70				31 70
O. C. Woolf	14	280 75	10 75		5 00		15 75
C. H. Yaple	25	391 55	41 85				41 85
Total	325	$4,978 02	$307 17	$21 55	$35 00		$363 72
F. C. MULLIN, DIVISION CHIEF, ST. LAWRENCE DIVISION							
W. J. Andre	21	$430 64	$25 14	$3 00			$28 14
J. E. Ball	2	53 50	6 75				6 75
W. G. Bell	19	267 35	23 45	10 40			33 85
J. Dollinger	12	212 00	7 00				7 00
J. Hand	21	592 50	22 50				22 50
A. G. Harris	24	469 75	15 00				15 00
Jos. Jenkins	16	274 05	22 40	8 35	$39 85		70 60
J. H. Kane	26	454 65	35 05	4 00	55 00		94 05
J. H. Mallette	15	178 52	28 45	18 61	25 00		72 06
F. C. Mullen	1						
J. Northup	8	125 50	6 00				6 00
J. T. Smith	9	173 90	11 55	14 55	8 25		34 35
C. M. Stearne	27	740 85	24 25	5 80	30 00		60 05
P. Ver Snyder	14	193 80	17 55				17 55
Total	215	$4,167 01	$245 09	$64 71	$158 10		$467 90
W. H. WESTON, DIVISION CHIEF, CENTRAL NEW YORK DIVISION							
F. H. Bellinger	6	$145 00	$5 00				$5 00
E. B. Downing	28	532 65	53 55	$7 00	$45 00		105 55
C. J. Franklin	5	155 25	5 25				5 25
Wm. Herrick	25	342 35	19 35				19 35
W. A. Hoagland	25	613 30	56 40	11 00	45 05	$23 50	135 95
S. S. Taylor	24	299 15	31 10	18 15			49 25
M. Westcott	27	503 70	23 30				23 30

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RECORDS OF DIVISIONS, REGULAR PROTECTORS — (*Continued*)

REGULAR PROTECTORS	Number cases	Recovery	Court costs	Constable fees	Attorneys' fees	Other charges	Total costs
W. H. WESTON, DIVISION CHIEF, CENTRAL NEW YORK DIVISION — (*Concluded*)							
W. H. Weston	12	$365 00	$10 00				$10 00
John Willis	23	457 30	30 75	$13 45	$107 78	$10 00	161 98
C. G. Worden	32	707 60	73 95	3 75	62 15		139 85
Total	207	$4,121 30	$308 65	$53 35	$259 98	$33 50	$655 48
C. R. STAPLEY, DIVISION CHIEF, ALLEGANY DIVISION							
C. A. Beebe	25	$309 50	$20 00	$7 40			$27 40
C. C. Culver	33	411 55	33 75	2 00			35 75
H. Heffernan	39	543 80	36 55				36 55
L. S. Morris	32	458 25	23 25				23 25
W. L. Reed	9	170 75	11 45				11 45
S. S. Scott	21	281 40	16 40				16 40
C. R. Stapley	30	303 25	13 25				13 25
V. A. Zimmer	15	250 70	12 20			$0 50	12 70
Total	204	$2,729 20	$166 85	$9 40		$0 50	$176 75
CHARLES E. LEE, DIVISION CHIEF, HUDSON DIVISION							
J. Barry	24	$401 00	$24 00	$7 20	$20 00		$51 20
A. J. Conklin	6	88 75	3 75				3 75
E. C. Cross	62	1,139 00	62 15	14 25	15 00		91 40
Fred DeWitt	47	1,024 50	46 50	10 35	20 00		76 85
C. Emerick	12	122 45	22 95	12 10	20 00		55 05
W. Kidd	5	46 25	8 35				8 35
C. E. Lee							
R. F. Mahar	10	268 10	13 00	20 10	57 00		90 10
Total	166	$3,090 05	$180 70	$64 00	$132 00		$376 70
JAMES A. COLLOTON, DIVISION CHIEF, ONTARIO DIVISION							
M. L. Callaghan	18	$259 95	$28 01				$28 01
J. A. Colloton	8	240 00					
George Davis	2	53 00	3 00				3 00
H. C. DeWolf	10	733 60	22 45	$2 00	$20 00		44 45
C. T. DoVille	14	263 20	16 00				16 00
E. H. Gammon	34	751 50	92 05	31 15	44 54		167 74
P. Knobloch	8	170 65	10 65				10 65
C. H. O'Donnell	20	395 15	30 45	3 00			33 45
George H. Travis	51	1,083 50	39 65	4 70	10 00		54 35
Total	165	$3,950 55	$242 26	$40 85	$74 54		$357 65
R. B. NICHOLS, DIVISION CHIEF, EASTERN ADIRONDACK DIVISION							
D. Bump	9	$143 00	$16 30	$4 50	$20 00		$40 80
W. H. Burnett	11	161 45	15 20				15 20
W. J. Butler	10	191 10	11 50				11 50
H. B. Cruikshank	23	290 50	27 45				27 45
T. Godbout	4	49 00	4 70				4 70
G. B. Howland	4	103 00	3 00				3 00
M. B. Leland	19	381 20	29 10				29 10
D. W. Linnehan	3	57 65	2 65				2 65
J. J. McDonough	7	60 25	11 85	4 60	5 00		21 45
R. B. Nichols	4	47 10	11 50	16 90	10 00		38 40
W. H. Ronald	3	69 00	9 00				9 00
N. A. Scott	21	394 50	18 45				18 45
T. J. Sheridan	25	498 85	33 55	5 85	11 30		50 70
R. Somerville	20	417 50	30 50		10 00		40 50
Total	163	$2,864 10	$224 75	$31 85	$56 30		$312 90

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RECORDS OF DIVISIONS, REGULAR PROTECTORS — (*Concluded*)

REGULAR PROTECTORS	Number cases	Recovery	Court costs	Constable fees	Attorney's fees	Other charges	Total costs
FRED. W. HAMILTON, DIVISION CHIEF, WESTERN DIVISION							
A. E. Buyers							
W. R. Clark	20	$374 25	$29 25				$29 25
F. W. Hamilton	32	1,196 50	22 45				22 45
J. F. Hirsch	17	192 15	10 90	$1 25			12 15
W. C. Hodge	5	74 75	4 75				4 75
R. N. Hudson	3	42 00	3 00				3 00
W. H. Irons	7	77 25	10 55	3 50	$25 00		39 05
T. E. Marsh	14	157 30	17 16				17 16
C. J. Miles	19	309 65	24 69	23 36	38 40		86 45
L. W. Paxon	7	188 75	8 75				8 75
R. W. Schuls	1		4 45		10 00		14 45
M. S. Smith	32	966 00	64 50	16 05	20 00		100 55
Total	157	$3,578 60	$200 45	$44 16	$93 40		$338 01
BYRON A. CAMERON, DIVISION CHIEF, NORTHERN ADIRONDACK DIVISION							
C. A. Bissell	4	$10 00	$9 30	$18 80	$30 00		$58 10
B. A. Cameron	6	113 34	7 75	60			8 35
J. S. Ford	22	247 00	71 70	12 15			83 85
C. J. Kirby	32	459 10	44 40	39 20			83 60
D. E. Moxley	13	203 50	14 50				14 50
J. H. North	9	218 50	4 00		6 67		10 67
Chas. Riley	4		6 55	4 00	14 33		24 88
D. W. Seokington	25	308 00	33 35	6 25	10 00		49 60
E. St. Clair	4	54 00	16 60	8 45	15 00		40 05
F. G. Thomas	25	349 50	31 80	3 20	57 30		92 30
Total	144	$1,962 94	$239 95	$92 65	$133 30		$465 90
J. E. LEAVITT, DIVISION CHIEF, SOUTHERN ADIRONDACK DIVISION							
M. Haselton	30	$489 15	$36 05		$27 00		$63 05
C. M. Hiller	2	26 60	1 60				1 60
J. E. Leavitt							
C. H. Masten	25	479 85	26 75	$6 10			32 85
W. F. Newell	25	409 15	26 60	7 90	28 40		62 90
C. E. Underhill	31	666 80	46 10	12 25	11 55	$20 00	89 90
C. Wheaton	12	303 90	10 90				10 90
Total	125	$2,375 45	$148 00	$26 25	$66 95	$20 00	$261 20
C. A. JOHNSTON, DIVISION CHIEF, EASTERN DIVISION							
P. F. Butler	10	$180 00	$25 30				$25 30
Z. T. Cater	18	256 50	37 35	$34 75	$30 05		102 15
W. L. Delaney	4	90 00	8 10				8 10
J. A. Ginder	27	259 00	69 35	24 80	42 14		136 29
C. A. Johnston	15	323 80	46 65	1 45		$4 00	52 10
F. Van de Boe	17	296 90	15 90	6 00			21 90
Total	91	$1,406 20	$202 65	$67 00	$72 19	$4 00	$345 84

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RECORDS OF DIVISIONS, SPECIAL PROTECTORS

SPECIAL PROTECTORS	Number cases	Recovery	Court costs	Constable fees	Attorney's fees	Other charges	Total costs
JOHN T. MCCORMICK, DIVISION CHIEF, METROPOLITAN AND LONG ISLAND DIVISION							
A. M. Gage	3	$43 00	$7 90	.....	.....	$2 50	$10 40
G. K. Gill	2	20 00	.....	.....	.....	.....	.....
James Graham	2	75 00	.....	.....	.....	.....	.....
P. Manecke	2	.....	.....	.....	.....	.....	.....
D. Simoncini	2	24 00	4 00	.....	.....	.....	4 00
George Smith	2	10 00	.....	.....	.....	.....	.....
Total	13	$172 00	$11 90	.....	.....	$2 50	$14 40
WM. C. FARLEY, DIVISION CHIEF, SOUTHERN DIVISION							
Sam M. Perry	11	$120 00	$10 75	$1 50	.....	.....	$12 25
FRANK C. MULLIN, DIVISION CHIEF, ST. LAWRENCE DIVISION							
Charles F. Mandigo	1	$20 00	$4 85	$3 00	$10 00	.....	$17 85
L. McIntyre	2	36 00	1 00	.....	.....	.....	1 00
Fred E. Pitts	1	71 00	3 10	3 75	13 55	.....	20 40
J. F. Sterk	1	26 00	1 00	.....	.....	.....	1 00
A. M. Tanner	3	75 00	4 50	.....	.....	.....	4 50
Total	8	$228 00	$14 45	$6 75	$23 55	.....	$44 75
WM. H. WESTON, DIVISION CHIEF, CENTRAL NEW YORK DIVISION							
B. J. Anson	1	$17 00	$2 00	.....	.....	.....	$2 00
J. D. Black	1	11 00	1 00	.....	.....	.....	1 00
George Brier	12	334 95	15 35	.....	.....	.....	15 35
Jas. Bullard	17	194 00	14 70	$2 30	.....	.....	17 00
W. H. Bundenthal	23	494 75	43 45	1 50	$15 00	.....	59 95
A. J. Clark	2	61 50	1 50	.....	.....	.....	1 50
Bert Everingham	14	247 00	25 00	3 50	.....	.....	28 50
W. R. Floyd	9	78 00	6 95	.....	.....	.....	6 95
L. L. Hamilton	2	24 00	4 00	.....	.....	.....	4 00
J. L. Perry	1	11 00	1 00	.....	.....	.....	1 00
A. Van Patten	1	21 00	1 00	.....	.....	.....	1 00
Total	83	$1,494 20	$115 95	$7 30	$15 00	.....	$138 25
C. R. STAPLEY, DIVISION CHIEF, ALLEGANY DIVISION							
Frank J. Maloney	11	$183 30	$13 55	$7 55	.....	.....	$21 10
CHAS. E. LEE, DIVISION CHIEF, HUDSON DIVISION							
W. E. Torrey	1	$42 50	$2 50	.....	.....	.....	$2 50
L. H. Weed	1	.....	2 00	.....	.....	.....	2 00
Total	2	$42 50	$4 50	.....	.....	.....	$4 50
JAMES A. COLLOTON, DIVISION CHIEF, ONTARIO DIVISION							
L. Bardo	2	$31 80	$1 80	.....	.....	.....	$1 80
C. Bentley	3	60 00	2 79	.....	.....	.....	2 79
Jas. Dickinson	1	101 10	1 10	.....	.....	.....	1 10
Frank Esquirrel	1	15 00	2 65	$2 95	.....	.....	5 60
J. F. Hohman	8	172 50	12 50	10 00	.....	.....	22 50
John Moriarity	2	26 00	1 00	.....	.....	.....	1 00
D. J. Schroll	1	15 00	2 65	2 95	.....	.....	5 60
Fred Schmidt	2	34 10	.....	.....	.....	.....	.....
L. J. Spahn	1	25 00	2 00	5 75	.....	.....	7 75
Total	21	$480 50	$26 49	$21 65	.....	.....	$48 14

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RECORDS OF DIVISIONS, SPECIAL PROTECTORS — (*Concluded*)

SPECIAL PROTECTORS	Number cases	Recovery	Court costs	Constable fees	Attorney's fees	Other charges	Total costs
ROBERT B. NICHOLS, DIVISION CHIEF, EASTERN ADIRONDACK DIVISION							
E. Fish	1	$26 00	$1 00				$1 00
A. S. Temple	6	69 00	7 60				7 60
Total	7	$95 00	$8 60				$8 60
FREDERICK W. HAMILTON, DIVISION CHIEF, WESTERN DIVISION							
Frank Bond	10	$293 00	$8 00				$8 00
Chas. M. Holtz	6	35 00	15 00	$1 55	$15 00		31 55
J. E. Moon	1	26 55	1 55				1 55
E. N. Reynolds	1						
H. G. Saxton	1	31 00	1 00				1 00
E. G. Smith	2	33 10	3 10				3 10
A. Stadlmeir	15	245 00	31 15		20 00		51 15
R. Suor	25	519 30	50 10	8 70	30 00		88 80
Harry Wilcox	4	54 00	4 00				4 00
Total	65	$1,236 95	$113 90	$10 25	$65 00		$189 15
B. A. CAMERON, DIVISION CHIEF, NORTHERN ADIRONDACK DIVISION							
W. M. Stearns	30	$565 15	$46 95				$46 95
JOHN E. LEAVITT, DIVISION CHIEF, SOUTHERN ADIRONDACK DIVISION							
J. C. Blunck	2	$46 50	$3 70				$3 70
E. W. Gauding	10	105 20	5 20			$0 06	5 26
S. Squier	1	25 65	65				65
J. F. Weldon	5	81 90	1 90				1 90
Total	18	$259 25	$11 45			$0 06	$11 51
CASSIUS A. JOHNSTON, DIVISION CHIEF, EASTERN DIVISION							
H T. Ashton	2	$38 75	$3 75		$5 00		$8 75
E. Everett	4	40 00	4 60	$6 15			10 75
J. J. Farrell	2	125 00	1 00				1 00
J. D. Goodermote	2	30 00	4 30				4 30
A. Heck	3	38 25	8 25				8 25
Chas. H. Nesley	11	281 00	8 00	6 00			14 00
Wm. A. Ruth	1						
F. P. Viele	3	38 25	8 25				8 25
Total	28	$591 25	$38 15	$12 15	$5 00		$55 30

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HUNTING AND TRAPPING LICENSES ISSUED DURING THE FISCAL YEAR

October 1, 1912, to September 30, 1913

COUNTY	Resident	Non-resident	Non-resident tax	Total
Albany	2,604	60	.....	2,604
Allegany	3,296	.....	10	3,306
Broome	4,107	20	20	4,147
Cattaraugus	4,168	180	80	4,428
Cayuga	3,666	40	.....	3,706
Chautauqua	4,534	60	40	4,634
Chemung	2,747	.....	.....	2,747
Chenango	3,626	.....	.....	3,626
Clinton	2,294	20	.....	2,314
Columbia	2,365	60	20	2,445
Cortland	2,041	20	.....	2,061
Delaware	4,077	40	10	4,127
Dutchess	3,747	120	30	3,897
Erie	6,512	.....	10	6,522
Essex	4,587	160	30	4,777
Franklin	4,634	300	70	5,004
Fulton	2,874	40	20	2,934
Genesee	1,997	40	.....	2,037
Greene	2,198	20	10	2,228
Hamilton	1,301	60	60	1,421
Herkimer	4,401	260	50	4,711
Jefferson	6,029	100	.....	6,129
Kings	2,202	40	.....	2,242
Lewis	2,735	120	.....	2,855
Livingston	2,749	20	.....	2,769
Madison	2,755	20	.....	2,775
Monroe	7,190	120	.....	7,310
Montgomery	2,391	60	.....	2,451
Nassau	2,616	20	.....	2,636
New York	4,612	740	170	5,522
Niagara	1,941	.....	.....	1,941
Oneida	6,110	100	10	6,220
Onondaga	6,657	20	10	6,687
Ontario	2,445	20	.....	2,465
Orange	4,262	20	.....	4,282
Orleans	808	.....	.....	808
Oswego	4,174	40	10	4,224
Otsego	4,059	40	20	4,119
Putnam	840	.....	.....	840
Queens	1,230	20	.....	1,250
Rensselaer	2,512	60	.....	2,572
Richmond	563	20	.....	583
Rockland	1,697	.....	.....	1,697
St. Lawrence	6,461	420	40	6,921
Saratoga	2,622	40	10	2,672
Schenectady	2,570	.....	.....	2,570
Schoharie	1,610	.....	10	1,620
Schuyler	1,130	.....	.....	1,130
Seneca	1,317	.....	.....	1,317
Steuben	5,055	20	10	5,085
Suffolk	6,150	160	30	6,340
Sullivan	3,335	20	10	3,365
Tioga	1,893	.....	.....	1,893
Tompkins	2,621	.....	.....	2,621
Ulster	5,378	.....	20	5,398
Warren	2,681	20	.....	2,701
Washington	2,677	20	50	2,747
Wayne	3,305	.....	20	3,325
Westchester	3,321	120	20	3,461
Wyoming	2,127	.....	.....	2,127
Yates	1,495	.....	.....	1,495
Total	198,101	3,900	900	202,901

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SUMMARY OF RECEIPTS

Hunting and trapping licenses	$202,901 00
Fines and penalties	46,723 77
Game tagged	11,715 85
Trout tags	8,638 00
Importation licenses	306 60
Breeders' licenses (deer, etc.)	295 00
Sale of skins (confiscated)	168 97
Trout tagging machines	150 00
License to ship out of state	98 00
Non-resident trapping licenses	90 00
Skunk licenses	85 00
Possession of venison	65 00
Bird certificates	49 00
Sale of deer (confiscated)	33 75
Special protector badges	10 00
Net inspection	9 00
Signs	5 10
Sale of nets (confiscated)	4 25
Rent on trout tagging machine	1 00
	$271,349 29

NON-RESIDENT TRAPPING LICENSES DURING THE FISCAL YEAR OCTOBER 1, 1912, TO SEPTEMBER 30, 1913

Allegany	$20 00
Broome	10 00
Columbia	10 00
Cortland	10 00
Orange	10 00
Saratoga	10 00
Tioga	20 00
Total	$90 00

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THE ANNUAL KILL OF DEER IN THE ADIRONDACKS

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SEASON OF 1913 SHIPMENTS

Statistics of shipments of deer from points in the Adirondack regions have been supplied by John L. Van Valkenburgh, superintendent of the American Express Company, and C. S. Colvin, superintendent of the National Express Company, as follows:

SHIPMENTS OF DEER FROM POINTS IN THE ADIRONDACK REGION

Mohawk and Malone Route

STATION	Carcass	Saddle	Head	Total	Weight
Beaver River	43	5	.....	48	5,079
Big Moose	28	4	1	33	4,276
Brandreth	5	.....	2	7	787
Carter	47	3	3	53	6,130
Childwold	24	2	1	27	3,840
Floodwood	14	.....	.....	14	2,140
Forestport	25	7	.....	32	3,657
Fulton Chain	41	8	.....	49	5,741
Gabriels	13	1	2	16	1,804
Hinckley	9	.....	.....	9	1,313
Horseshoe	3	.....	.....	3	449
Lake Clear Junction	12	1	.....	13	1,787
Lake Kushaqua	3	.....	.....	3	410
Lake Placid	4	.....	1	5	613
Long Lake West	66	7	.....	73	8,809
Loon Lake	12	.....	.....	12	1,593
McKeever	22	1	.....	23	2,897
Minnehaha	6	1	.....	7	965
Moulin	3	.....	.....	3	450
Mountain View	3	.....	2	5	508
Nehasane	.....	.....	7	7	140
Onchiote	1	.....	.....	1	125
Otter Lake	5	.....	.....	5	550
Owls Head	.....	.....	2	2	23
Piercefield	45	.....	2	47	6,361
Pleasant Lake	9	.....	.....	9	1,175
Poland	2	.....	.....	2	262
Prospect	26	1	.....	27	3,570
Raquette Lake	18	.....	.....	18	2,343
Robinwood	1	.....	.....	1	150
Saranac Inn	2	2	2	6	302
Saranac Lake	7	.....	.....	7	1,009
Tupper Lake Junction	88	6	.....	94	11,316
White Lake Corners	29	.....	.....	29	3,970
Woods Lake	7	.....	.....	7	935
	623	49	25	697	85,429

N. Y. and O. Route

Bay Pond	3	1	.....	4	490
Brandon	11	.....	.....	11	1,605
Childwold	5	.....	.....	5	615
Derrick	15	.....	.....	15	2,075
Downey	1	.....	.....	1	90
Kildare	12	.....	.....	12	1,740
Madawaska	9	.....	1	10	1,055
Meno	22	.....	.....	22	3,380
Moira	1	.....	.....	1	125
St. Regis Falls	3	.....	1	4	521
Santa Clara	25	.....	.....	25	3,473
Spring Cove	11	1	.....	12	1,780
	118	2	2	122	16,949

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R. W. and O. Route (C. and A. Branch)

STATION	Carcass	Saddle	Head	Total	Weight
Aldrich	1	.....	.....	1	80
Benson Mines	29	1	6	36	4,151
Harrisville	28	.....	.....	28	3,919
Kalurah	5	.....	.....	5	870
Natural Bridge	1	.....	.....	1	115
Newton Falls	39	3	4	46	6,419
Oswegatchie	17	.....	1	18	2,156
Wanakena	49	16	5	70	7,349
	169	20	16	205	25,059

R. W. and O. Route

Canton	6	2	.....	8	740
De Kalb Junction	2	.....	.....	2	272
Edwards	1	.....	.....	1	150
Hermon	2	.....	.....	2	310
Lecona	1	.....	1	2	178
Massena	.....	.....	1	1	12
Potsdam	28	1	.....	29	3,973
Rensselaer Falls	1	.....	.....	1	100
Richland	1	.....	.....	1	119
	42	3	2	47	5,854

F. J. and G. Route

Fonda	3	.....	1	4	484
Gloversville	4	.....	.....	4	615
Johnstown	4	.....	.....	4	723
Northville	78	5	5	88	11,192
	89	5	6	100	13,014

Little Falls and Dolgeville Route

Dolgeville	.....	1	.....	1	100
Salisbury Center	1	.....	1	2	155
	1	1	1	3	255

R. W. and O. (U. and B. R. Route)

Alder Creek	7	.....	.....	7	891
Beaver Falls	1	.....	.....	1	136
Castorland	1	.....	.....	1	93
Croghan	14	.....	.....	14	2,019
Glenfield	15	.....	.....	15	2,126
Lowville	11	.....	.....	11	1,427
Lyons Falls	8	.....	.....	8	1,149
Ogdensburg	1	.....	.....	1	100
Port Leyden	2	.....	.....	2	254
Remsen	3	.....	.....	3	332
Sterlingville	1	.....	.....	1	130
	64	.....	.....	64	8,657

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Delaware and Hudson R. R.

STATION	Carcass	Saddle	Heads
Ausable Forks, N. Y.	1	.....	.....
Corinth, N. Y.	1	.....	6
Hadley, N. Y.	4	.....	7
Keeseville, N. Y.	.....	.....	3
Lake George, N. Y.	1	.....	.....
Loon Lake, N. Y.	2	.....	.....
Lyon Mountain, N. Y.	1	.....	.....
North Creek, N. Y.	103	1	3
Plattsburgh, N. Y.	1	.....	2
Port Henry, N. Y.	5	.....	30
Riverside, N. Y.	2	.....	5
Saratoga, N. Y.	1	.....	.....
Standish, N. Y.	1	.....	.....
Stony Creek, N. Y.	35	.....	1
The Glen, N. Y.	1	.....	.....
Ticonderoga, N. Y.	2	.....	4
Westport, N. Y.	2	.....	15
	163	1	76

Recapitulation

STATION	Carcass	Saddle	Head	Total	Weight
M. & M. Rte.	623	49	25	697	85,429
N. Y. & O. Rte.	118	2	2	122	16,949
R. W. & O. (C. & A. Rte.)	169	20	16	205	25,059
R. W. & O.	42	3	2	47	5,854
F. J. & G. Rte.	89	5	6	100	13,014
L. F. & D.	1	1	1	3	255
R. W. & O. (U. & B. R.)	64	.....	.....	64	8,657
	1,106	80	52	1,238	155,217
D. & H. R. R.	163	1	76	.....	.....
Grand total	1,269	81	128	.....	.....

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LIST OF DEER SHIPMENTS — WEIGHT 200 POUNDS OR OVER

Weight	Shipping station	Consignee	Destination
200....	Meno.....	H. Perkins.....	Potsdam.
200....	Derrick.....	W. W. Owens.....	Casenovia.
200....	Madawaska.....	E. J. McCarten.....	Waddington.
200....	Meno.....	B. Snell.....	Dickenson Center.
200....	Derrick.....	Mrs. H. Doll.....	Buffalo.
200....	Meno.....	C. Woster.....	Dickenson Center.
200....	Brandon.....	D. Mooney.....	Tupper Lake Jct.
200....	Spring Cove.....	M. Asell.....	Norwood.
200....	Kalurah.....	George Coe.....	Scriba.
200....	Floodwood.....	E. Snyder.....	Albany.
200....	Childwold.....	V. F. Saxton.....	Utica.
220....	Childwold.....	F. Hackett.....	Rochester.
220....	Childwold.....	William Laing.....	Brooklyn.
200....	Moulin.....	J. Smith.....	Vernon.
220....	Brandon.....	Jennie Doll.....	Buffalo.
250....	Spring Cove.....	J. Canaeveau.....	Buffalo.
260....	Kildare.....	L. N. Levin.....	Tupper Lake Jct.
200....	Big Moose.....	Will Slack.....	Chenango Bridge.
200....	Big Moose.....	D. Holdridge.....	Schuyler Lake.
200....	Carter.....	D. Edmondson.....	Forestport.
217....	Forestport.....	A. Straight.....	Syracuse.
200....	Fulton Chain.....	C. W. Baker.....	Cincinnati, Ohio.
210....	Fulton Chain.....	W. D. Loomis.....	Bainbridge, N. Y.
211....	Horseshoe.....	J. W. Moody.....	Saranac Lake.
200....	Lake Clear Junction.....	J. Clarey.....	Brooklyn.
200....	Long Lake West.....	Dr. J. F. Wingenbach....	Utica.
200....	Mt. View.....	E. F. Vannuman.....	Brooklyn.
203....	Piercefield.....	J. E. Arnold.....	Nyando.
204....	Piercefield.....	W. A. Prentiss.....	Penn Yan.
210....	Tupper Lake Junction.....	Alex Kercher.....	Buffalo.
214....	White Lake Corners.....	A. Moore.....	Remsen.
225....	White Lake Corners.....	F. Burns.....	New York.
200....	White Lake Corners.....	P. Smith.....	Utica.
200....	St. Regis Falls.....	R. T. Price.....	Ossining.
218....	Santa Clara.....	A. Krett.....	Brooklyn.
200....	Benson Mines.....	E. S. Turner.....	Black River.
217....	Benson Mines.....	P. Funk.....	Rochester.
225....	Benson Mines.....	W. E. Fan.....	Syracuse.
200....	Harrisville.....	M. S. Maynit.....	Limerick.
222....	Harrisville.....	W. B. Edwards.....	Watertown.
200....	Harrisville.....	H. Hedit.....	Fulton.
200....	Newton Falls.....	F. Rowland.....	Syracuse.
214....	Newton Falls.....	F. A. Gayne.....	Great Bend.
211....	Newton Falls.....	B. O. Bush.....	Batavia.
211....	Newton Falls.....	A. J. Fix.....	Batavia.
228....	Newton Falls.....	J. Savage.....	Great Bend.
210....	Newton Falls.....	C. Pattenden.....	Clay.
218....	Newton Falls.....	W. H. Curry.....	Avon.
200....	Johnstown.....	Maud C. Kopp.....	Dresden.
205....	Northville.....	R. Newman.....	New York.
214....	Northville.....	H. Spittle.....	New York.
204....	Northville.....	H. J. Kaiser.....	Mt. Vernon.
207....	Croghan.....	A. Lubeck.....	Brooklyn.
210....	Glen Field.....	E. F. Rogers.....	Oswego.
200....	Glen Field.....	F. H. Watson.....	Syracuse.
208....	Lyons Falls.....	C. W. Cragen.....	Camillus.
200....	North Creek.....	R. Lee.....	Troy.
200....	North Creek.....	E. H. Garling.....	Schenectady.
203....	North Creek.....	Charles A. MacHenry....	Brooklyn.
200....	Standish.....	Ed Duchane.....	Lyon Mountain.
210....	Stony Creek.....	D. T. Hill.....	Schenectady.

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HUNTING ACCIDENTS

The Commission issued instructions to its entire protective force to report promptly and in detail on all hunting accidents, with especial reference to hunters mistaken for deer, and great care was taken to investigate all reports or allegations of dead does left to rot in the woods. Such reports or allegations were uniformly found to be baseless or greatly exaggerated.

Up to the close of the deer season, reports from the protectors showed that out of 19 fatal hunting accidents in the entire State but two were killed through being mistaken for deer; only five had any connection whatever with deer hunting.

On October 17, William Schreyer, a guide of Tupper Lake, was fatally shot at Shattick Clearing, near Axton, by Thomas Lawrence, a New York city sportsman, who thought he was shooting at a deer, although he had hunted many seasons in the woods. On November 3, Walter Vallier, also a guide, was killed by a heedless shot fired by his own son at Star Lake in St. Lawrence county. On October 13, Warner Briggs, of Coffins Mills, was instantly killed by his friend, Grover Spencer, who firing at a deer, missed it and hit his companion whom he did not see on the opposite side of the trail. The bullet struck a tree and glanced. Giles Jones, of Turin, while hunting deer, was killed by a bullet from his own rifle, which was accidentally fired in some way unknown. Frank Holmes, an Adirondack guide, was fatally wounded by Eugene De Bronkhart, of New York, when a gun which the latter was loading preparatory to starting on a deer hunt was accidentally discharged.

From the reports received it is found that the vast majority of accidents this season occurred to small game hunters, and that a large majority of the casualties were due to the recklessness and carelessness of the victims themselves.

The fatalities which had nothing to do with deer hunting were as follows: October 2, Tony Cherry, East Buffalo, aged 42, climbing fence, shot-gun accidentally discharged, right arm torn to pieces, died in Batavia hospital, October 3; October 4, James Hutchinson, Sonora, aged 18, climbing fence, shot-gun trigger caught, shot taking effect in neck and head; October 4, Walter Gardner, accidentally shot his brother while handling gun, Avoca,

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N. Y.; October 8, Robert Watson, Hornell, aged 22, preparing to going into the woods to hunt, when in some way, he was shot dead; it is said he was cleaning gun; October 10, Sirius W. Berger, Putnam Valley, accidentally shot by a companion while hunting; October 12, Miss Jessie Packer, aged 29, accidental discharge of shot-gun in the hands of Charles J. Marshall, at the home of her father, South Waterloo; October 12, Omar Mackey, Flat Creek, accidentally shot himself while out hunting; according to reports, he was drawing the gun toward him when it was discharged, the shot entering his leg; died October 19 at the Oneonta hospital, age 19; October 13, Robert Shore, town of Burke, almost instantly killed when shot through thighs while hunting. Shore had a double barrelled gun, fired one shot at a raccoon, the coon fell to the ground and he started to club it with the butt of the gun when the full barrel was discharged, killing him; October 20, Frederick E. Hummel, age 15, Jamesville, shot while hunting ducks, died while being taken to the Irving hospital; George F. Murz, a young farmer of Rotterdam, hunting crows, resting butt of shot-gun on ground, gun accidentally exploded, blowing off right side of face; October 24, Merle Tremper, 16 years, accidentally discharged shot-gun which he was carrying, shot blowing off part of his right shoulder and part of his head; October 27, Ruth Rowley, age 14, was in row boat hunting ducks with her father, shot-gun accidentally discharged, shot taking effect just over the girl's heart; October 27, Clarence Burch, 16 years, fell from a tree while hunting near Leonardsville, the gun being discharged in the fall, contents entering body causing instant death; October 27, Harry Botts, Waterloo, age 14, accidentally shot by his companion, Harold Flegley; November 3, Louise Clark, age 7, shot by her brother Ernest, age 10, while playing in kitchen with a pump-gun which was accidentally fired.

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ANNUAL REPORT

OF THE

BUREAU OF MARINE FISHERIES

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ANNUAL REPORT

OF THE

SUPERVISOR OF MARINE FISHERIES

Hon. THOMAS H. GUY, *Deputy Conservation Commissioner:*

I herewith transmit report of the Bureau of Marine Fisheries for the fiscal year ending September 30, 1913, as required by section 303, part 10 of the Conservation Law. I have endeavored to have all details, statistics, etc., as appear on the records of this bureau, presented comprehensively. Notwithstanding the loss of revenue caused by the State in ceding its title of Jamaica Bay properties to Greater New York, the revenues of this bureau exceed that of the year previous, the finances being assisted, to some extent, by the fact that as conditions existing in Jamaica Bay prevent the expansion of the shellfish industry in these waters, more attention is given to consideration of other parts of the marine district.

Considerable acreage has been leased during the past year in the Hudson and East rivers, in localities for a long time unused. Planters believe that these grounds, useless in their present state, may be made profitable as seed ground, with proper cultivation. Grounds leased during the last fiscal year exceed by five fold that of the previous year, and applications now on file and inquiries concerning unleased grounds, indicate that the next annual report will show a large increase in acreage leased above that contained in the present statement.

If the provisions of sections 310 to 314, relating to sanitary inspection of shellfish grounds, were carried out, it would be of great benefit to the oyster industry, as an official certificate of purity and wholesomeness would make welcome the shellfish products of this State in markets accustomed to receive assurance of the oyster's fitness as food. This bureau has, during the past year, had considerable correspondence with the board of health of Greater New York concerning the city's health requirements

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in marketing oysters, designed to co-operate between the State and city, which is the principal market for our marine products.

Effort has been made during the past year to collect arrears of taxes on shellfish grounds, final endeavor being the issuing of sheriff's warrants in the various counties where lands are located. The greater portion of these warrants have been returned unsatisfied, and as the cost of sale would generally exceed the amount of tax, it might be advisable to amend the law bearing on this subject, making it a simpler matter to have such lands formally revert to the State.

The work of this bureau has been facilitated during the past year in having the services of a competent surveyor, and all grounds leased have been promptly surveyed and relocations made when applied for. Leases for some of the lots surveyed during the last few days of the fiscal year were not issued in time to appear in this statement, but will appear in the next annual report. Statement of the surveyor appears in full in this report. If a suitable vessel were provided to this bureau, the services of the surveyor could be made of added value to the State, in plotting and examining the grounds of the marine district, establishing a better system of signals, and verifying boundaries of lots already granted.

Especial comment on the various classifications of this report is probably not necessary, as each class is presented in detail and a summary of totals is appended.

Considering the loss of Jamaica Bay revenues, the financial showing for the year is satisfactory and indications are that a further increase will be shown in the next annual report.

Yours very respectfully,

EDWIN BAILEY,

Supervisor.

Dated, NEW YORK, *December* 1, 1913.

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SURVEYOR'S REPORT

November 21, 1913.

Hon. EDWIN BAILEY, *Supervisor, Bureau of Marine Fisheries, Conservation Commission, New York City:*

DEAR SIR.— The following is the report of the surveys made in connection with the location of the lands under water in the State of New York used for oyster cultivation during the fiscal year ending September 30, 1913.

Appended hereto is a list of the forty-two lots surveyed, showing a total area of 2,917.8 acres, the larger part of which are in Raritan Bay.

Besides the work done in surveying and mapping the above grounds, a reconnaissance was made of the oyster grounds in Greata South Bay and detailed lists made of all the individual lots, the total area of which is 7,549.26 acres. The triangulation signals on Staten Island were inspected, repaired and painted. Some of the signals on the north shore of Long Island were inspected and the majority found to be in good condition. As the Conservation Commission's boat "Olive" was placed at my disposal for only a few days this inspection was not completed, but should be in the immediate future.

Application has been made for relocation surveys of oyster grounds in Smithtown Bay where most of the signals have been destroyed. It will be impossible to make these surveys and re-establish the signals until a boat is available for use by the surveyor.

The maps and note-books of all former surveys have been indexed and filed, tracings made of the maps, and blue prints placed on file in the Albany office. Lists have been made of all lots which have been assigned back to the State of New York, and these lists made available to the oyster men.

During the past year there were leased 657.2 acres of ground in the Hudson river. No triangulation or polyconic projection has ever been made in this locality, and if applications continue

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to be made for grounds in the Hudson river it would seem advisable that a triangulation survey be made.

Respectfully submitted,

EDWARD H. SARGENT,

Surveyor, Bureau of Marine Fisheries, Conservation Commission.

SURVEYS FOR NEW LEASES

September 30, 1912, *to September* 30, 1913.

LESSEE		Lot No.	Long Island Sound	East Chester Bay	Raritan Bay	Hudson River
			Acres	*Acres*	*Acres*	*Acres*
New York Oyster Co		5	.....	.....	.....	284.0
J. I. Merrell		6	.....	.....	.....	4.5
New York Oyster Co		*7	.....	.....	.....	2.4
New York Oyster Co		8	.....	.....	.....	4.1
New York Oyster Co		*9	.....	.....	.....	2.7
New York Oyster Co		10	.....	.....	.....	2.1
New York Oyster Co		11	.....	.....	.....	12.2
New York Oyster Co		*12	.....	.....	.....	3.7
New York Oyster Co		*13	.....	.....	.....	46.6
New York Oyster Co		*1-A	.....	.....	.....	27.8
New York Oyster Co		*1-B	.....	.....	.....	267.1
Augustus G. Miller		327	.....	2.1	.....	.....
F. F. Downs	Resurveys	Townships	.....	.....	.....	.....
		1154	.....	.....	.....	.....
		2254	125.0	.....	.....	.....
F. F. Downs		Township	.....	.....	.....	.....
		5558	97.0	.....	.....	.....
J. E. Still		1000	.....	.....	50.0	.....
Pausch Bros. Oyster Co		989	.....	.....	200.0	.....
Pausch Bros. Oyster Co		990	.....	.....	100.0	.....
New York Oyster Co		926	.....	.....	39.4	.....
Asel F. Merrell		993	.....	.....	89.4	.....
Christian Walle		1001	.....	.....	4.2	.....
Geo. Marshall		*1002	.....	.....	5.0	.....
Alex. Fraser		1005	.....	.....	30.0	.....
Thomas Hassett		999	.....	.....	202.4	.....
New York Oyster Co		1006	.....	.....	100.0	.....
Alex Fraser		1007	.....	.....	10.0	.....
J. E. Still		1008	.....	.....	50.0	.....
New York Oyster Co		1009	.....	.....	45.0	.....
Fraser & Houghwout		1010	.....	.....	30.0	.....
Alex Fraser		1011	.....	.....	152.1	.....
Alex Fraser		1012	.....	.....	185.1	.....
Clarence DeHart		1013	.....	.....	101.6	.....
J. I. Merrell		1014	.....	.....	14.5	.....
Clarence DeHart		1015	.....	.....	220.0	.....
H. S. Marshall		1016	.....	.....	2.2	.....
Asel F. Merrell		1017	.....	.....	73.7	.....
Pausch Bros. Oyster Co		1018	.....	.....	75.5	.....
Pausch Bros. Oyster Co		1019	.....	.....	46.3	.....
Pausch Bros. Oyster Co		1020	.....	.....	91.8	.....
Geo. M. Still		1021	.....	.....	29.7	.....
New York Oyster Co		1022	.....	.....	33.9	.....
Thomas Hassett		*1023	.....	.....	50.4	.....
New York Oyster Co		*1024	.....	.....	4.3	.....
Total acreage		.....	222.0	2.1	2,036.5	657.2
Grand total		.....	.....	.....	.....	2,917.8

* Lease not yet executed.

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OYSTER GROUNDS APPLIED FOR AND GRANTED AT $2 PER ACRE PER ANNUM

For Fiscal Year Ending September 30, 1913

Application number	Name	Location	Acres
1925	John I. Merrell	Raritan bay	50
1926	Fraser & Howell	Raritan bay	30
1927	Fraser & Howell	Raritan bay	10
1928	Alexander Fraser Co	Raritan bay	150
1929	Alexander Fraser Co	Raritan bay	150
1930	J. E. Still	Raritan bay	50
1931	New York Oyster Co	Raritan bay	40
1932	New York Oyster Co	Raritan bay	25
1933	Alexander Fraser Co	Raritan bay	150
1934	New York Oyster Co	Hudson river	400
1935	Clarence De Hart	Raritan bay	130
1936	John I. Merrell	Raritan bay	30
1937	Clarence De Hart	Raritan bay	220
1938	Pausch Bros. Oyster Co	Raritan bay	100
1939	Pausch Bros. Oyster Co	Raritan bay	100
1940	Pausch Bros. Oyster Co	Raritan bay	100
1941	G. M. Still	Raritan bay	25
1942	Axel F. Merrell	Raritan bay	90
1943	Axel F. Merrell	Raritan bay	75
1944	John I. Merrell	Hudson river	6
1945	New York Oyster Co	Raritan bay	30
1946	New York Oyster Co	Hudson river	50
1947	New York Oyster Co	Hudson river	50
1948	New York Oyster Co	Hudson river	30
1949	New York Oyster Co	Hudson river	10
1950	New York Oyster Co	Hudson river	30
1951	New York Oyster Co	Hudson river	4
1952	New York Oyster Co	Hudson river	5
			2,140

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LEASES EXECUTED AND NUMBER OF ACRES LEASED FROM OCTOBER 1, 1912, TO OCTOBER 1, 1913

LEASE NO.	Lot No.	Location	Acres	Name
1431	913	Raritan bay	42.6	Sealshipt Oyster System.
1432	917	Raritan bay	11.4	Polworth & Elsworth.
1433	915	Raritan bay	45.8	Polworth & Elsworth.
1434	1004	Raritan bay	21.4	John I. Merrell.
1435	1005	Raritan bay	30.0	Alex. Fraser Co.
1436	916	Raritan bay	44.2	New York Oyster Co.
1437	918	Raritan bay	12.8	New York Oyster Co.
1438	1006	Raritan bay	101.8	New York Oyster Co.
1439	1007	Raritan bay	10.0	Alex. Fraser Co.
1440	924	Raritan bay	58.2	Sealshipt Oyster System.
1441	999	Raritan bay	202.4	Thomas Hassett, Jr.
1442	926	Raritan bay	39.4	New York Oyster Co.
1443	1009	Raritan bay	45.0	New York Oyster Co.
1444	1010	Raritan bay	30.0	Fraser & Houghwout.
1445	1011	Raritan bay	152.1	Alex. Fraser Co.
1446	1012	Raritan bay	185.1	Alex. C. Fraser.
1447	1008	Raritan bay	50.0	J. E. Still.
1448	1016	Raritan bay	2.2	Henry S. Marshall.
1449	1001	Raritan bay	4.2	Christian Walle.
1450	1019	Raritan bay	46.3	Pausch Bros. Oyster Co.
1451	1018	Raritan bay	75.5	Pausch Bros. Oyster Co.
1452	1020	Raritan bay	91.8	Pausch Bros. Oyster Co.
1453	1013	Raritan bay	101.6	Clarence De Hart.
1454	1015	Raritan bay	220.0	Clarence De Hart.
1455	327	East Chester bay	2.1	Aug. G. Miller.
1456	1014	Raritan bay	14.5	John I. Merrell.
1457	1021	Raritan bay	29.7	Geo. M. Still.
1458	5	Hudson river	284.0	New York Oyster Co.
1459	6	Hudson river	4.5	John I. Merrell.
1460	1022	Raritan bay	33.9	New York Oyster Co.
1461	1017	Raritan bay	73.7	Alex. F. Merrell.
1462	993	Raritan bay	89.4	Alex. F. Merrell.
1463	920	Raritan bay	7.2	William H. Lockwood.
1464	11	Hudson river	12.2	New York Oyster Co.
1465	919	Raritan bay	14.4	John I. Merrell.
1466	8	Hudson river	4.1	New York Oyster Co.
1467	10	Hudson river	2.1	New York Oyster Co.
			2,195.6	

STATEMENT OF OYSTER GROUNDS HELD UNDER LEASE OR FRANCHISE

	Acres	Tax
Schedule "A"	13,019.2	$3,254 80
Schedule "B"	2,610.45	652 61
Schedule "C"	16,035.6	4,008 90
Total	31,665.25	$7,916 31

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SCHEDULE "A"

NAME	Lot No.	Location	Acres	Lease granted	Lease expires	Rate of rental	Annual rental	Annual tax
N. S. Ackerly & Son Co	984	Raritan bay	150.0	Jan. 11, 1911	Jan. 11, 1926	$2 00	$300 00	$37 50
N. S. Ackerly & Son Co	985	Raritan bay	100.0	July 29, 1911	July 29, 1926	2 00	200 00	25 00
John C. Allen	Section B	Long Island sound	22.0	June 14, 1904	June 14, 1919	25	5 50	5 50
John C. Allen	123	Long Island sound	5.8	June 14, 1904	June 14, 1919	25	1 45	1 45
John C. Allen	190	Long Island sound	5.8	April 10, 1900	April 10, 1915	25	1 45	1 45
Androvette & Thompson	980	Raritan bay	23.2	Sept. 21, 1910	Sept. 21, 1925	2 00	46 40	5 80
Androvette & Thompson	979	Raritan bay	20.0	Sept. 21, 1910	Sept. 21, 1925	2 00	40 00	5 00
Androvette & Thompson	900	Raritan bay	9.0	Mar. 10, 1909	Mar. 10, 1934	2 00	18 00	2 25
John M. Benner	112	Long Island sound	30.4	July 8, 1902	July 8, 1917	25	7 60	7 60
John M. Benner	115	Long Island sound	95.4	July 8, 1902	July 8, 1917	25	23 85	23 85
John M. Benner	119	Long Island sound	17.6	July 8, 1902	July 8, 1917	25	4 40	4 40
John M. Benner	116	Long Island sound	65.4	Feb. 11, 1902	Feb. 11, 1917	25	16 35	16 35
John M. Benner	111	Long Island sound	54.0	Jan. 14, 1902	Jan. 14, 1917	25	13 50	13 50
John M. Benner	110	Long Island sound	25.8	July 8, 1902	July 8, 1917	25	6 45	6 45
John M. Benner	125	Long Island sound	216.2	May 9, 1905	May 9, 1920	25	54 05	54 05
John M. Benner	124	Long Island sound	118.2	Sept. 8, 1903	Sept. 8, 1918	25	29 55	29 55
John M. Benner	113	Long Island sound	242.4	Nov. 12, 1901	Nov. 12, 1916	25	60 60	60 60
John M. Benner	Several	Long Island sound	164.4	Dec. 12, 1905	Dec. 12, 1920	25	41 10	41 10
John M. Benner	Several	Long Island sound	180.0	Dec. 12, 1905	Dec. 12, 1920	25	45 00	45 00
John M. Benner	83	Long Island sound	77.0	April 10, 1906	April 10, 1921	25	19 25	19 25
John M. Benner	69	Long Island sound	9.4	July 8, 1902	July 8, 1917	25	2 35	2 35
John M. Benner	72	Long Island sound	122.2	Oct. 27, 1908	Oct. 27, 1933	2 00	244 40	30 55
John M. Benner	Several	Long Island sound	420.0	April 27, 1909	April 27, 1924	2 00	840 00	105 00
John M. Benner	Several	Long Island sound	150.0	Sept. 29, 1909	Sept. 29, 1924	2 00	300 00	37 50
John M. Benner	Several	Long Island sound	342.6	Sept. 29, 1909	Sept. 29, 1924	2 00	685 20	85 65
Daniel Burbank	890	Raritan bay	19.8	Jan. 9, 1909	Jan. 9, 1923	2 00	39 60	4 95
John M. Bell	269	East Chester bay	9.6	April 10, 1906	April 10, 1921	25	2 40	2 40
John M. Bell	268	Long Island sound	6.8	Nov. 12, 1901	Nov. 12, 1916	25	1 70	1 70
John T. Bird	Section B	Long Island sound	24.6	April 10, 1900	April 10, 1950	25	6 15	6 15
Bayles & Thorn	95	Long Island sound	62.8	April 23, 1900	April 3, 1950	25	15 70	15 70
Bayles & Thorn	121	Long Island sound	43.8	June 14, 1904	June 4, 1919	25	10 95	10 95
Bayles & Thorn	321	Long Island sound	28.6	Dec. 1, 1910	Dec. 1, 1925	2 00	57 20	7 15
Jacob Brady	249	East Chester bay	27.6	April 10, 1906	April 10, 1921	25	6 90	6 90
John Bell	251	East Chester bay	6.4	Dec. 10, 1901	Dec. 10, 1916	25	1 60	1 60
John Bell	258	East Chester bay	9.2	April 10, 1906	April 10, 1921	25	2 30	2 30
Oswald T. Bergen	272	Long Island sound	11.2	Mar. 11, 1902	Mar. 11, 1917	25	2 80	2 80
Bell, Fordham & Bell	89	Long Island sound	12.8	Jan. 9, 1900	Jan. 9, 1915	25	3 20	3 20
Bayless, Bumstead & Fletcher	Several	Long Island sound	180.2	Aug. 13, 1901	Aug. 13, 1916	25	45 05	45 05
James A. Cochran	997	Raritan Bay	108.4	Nov. 2, 1911	Nov. 2, 1926	2 00	216 80	27 10

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SCHEDULE "A" — (*Continued*)

NAME	Lot No.	Location	Acres	Lease granted	Lease expires	Rate of rental	Annual rental	Annual tax
James A. Cochran	986	Raritan bay	75.0	Nov. 2, 1911	Nov. 2, 1926	$2 00	$150 00	$18 75
James A. Cochran	992	Raritan bay	50.0	Nov. 2, 1911	Nov. 2, 1926	2 00	100 00	12 50
Ernest F. Colon	951	Raritan bay	9.2	April 14, 1903	April 14, 1918	25	2 30	2 30
Ernest F. Colon	952	Raritan bay	1.6	May 12, 1903	May 12, 1918	25	40	40
David B. Colon	950	Raritan bay	4.8	May 14, 1901	May 14, 1916	50	2 40	1 20
Stephen Collins	255	Long Island sound	6.4	April 8, 1902	April 8, 1917	25	1 60	1 60
Stephen Collins	234	Long Island sound	7.2	April 8, 1902	April 8, 1917	25	1 80	1 80
Stephen Collins	265	Long Island sound	2.0	April 8, 1902	April 8, 1917	25	50	50
Bernard Collins	264	Long Island sound	1.6	April 8, 1902	April 8, 1917	25	40	40
Bernard Collins	233	Long Island sound	2.8	April 8, 1902	April 8, 1917	25	70	70
Crooker & Allen	93G	Long Island sound	15.5	April 23, 1900	April 23, 1950	25	3 88	3 88
Charles Cowens	93B	Long Island sound	15.8	April 23, 1900	April 23, 1950	25	3 95	3 95
George W. Conklin	996	Raritan bay	93.0	Nov. 2, 1911	Nov. 2, 1926	2 00	186 00	23 25
Selah T. Clock	998	Raritan bay	100.0	Nov. 2, 1911	Nov. 2, 1926	2 00	200 00	25 00
Selah T. Clock	988	Raritan bay	150.0	Nov. 2, 1911	Nov. 2, 1926	2 00	300 00	37 50
Selah T. Clock	991	Raritan bay	150.0	Nov. 2, 1911	Nov. 2, 1926	2 00	300 00	37 50
F. F. Downs	Several	Long Island sound	40.0	July 12, 1910	July 12, 1925	2 00	80 00	10 00
F. F. Downs	Several	Long Island sound	60.0	July 12, 1910	July 12, 1925	2 00	120 00	15 00
F. F. Downs	Several	Long Island sound	125.0	July 9, 1912	July 9, 1927	2 00	250 00	31 25
F. F. Downs	Several	Long Island sound	97.0	July 9, 1912	July 9, 1927	2 00	194 00	24 25
F. F. Downs	Several	Long Island sound	135.0	Jan. 11, 1911	Jan. 11, 1926	2 00	270 00	33 75
F. F. Downs	Several	Long Island sound	25.0	Jan. 11, 1911	Jan. 11, 1926	2 00	50 00	6 25
Frederick Denz	320	Long Island sound	8.6	Dec. 1, 1910	Dec. 1, 1925	2 00	17 20	2 15
Dennis Dougherty	286	East Chester bay	5.8	April 10, 1906	April 10, 1921	25	1 45	1 45
Dennis Dougherty	288	East Chester bay	10.6	April 10, 1906	April 10, 1921	25	2 65	2 65
J. A. Deveaugh	235	Pelham bay	12.4	April 9, 1902	April 8, 1917	25	3 10	3 10
D. & H. Oyster Co	Plot D	Long Island sound	86.0	April 10, 1906	April 10, 1921	25	21 50	21 50
Richard M. Ellard	318	Long Island sound	10.0	Dec. 1, 1910	Dec. 1, 1925	2 00	20 00	2 50
Richard M. Ellard	319	Long Island sound	4.8	Dec. 1, 1910	Dec. 1, 1925	2 00	9 60	1 20
Alexander C. Frazer	939	Raritan bay	.5	July 8, 1902	July 8, 1917	25	25	13
A. L. Field	308	Long Island sound	4.4	Jan. 8, 1909	Jan. 8, 1924	2 00	8 80	1 10
John O. Fordham	229	Pelham bay	18.2	April 8, 1902	April 8, 1917	25	4 55	4 55
John O. Fordham	232	Pelham bay	11.2	June 10, 1902	June 10, 1917	25	2 80	2 80
John O. Fordham	305	Pelham bay	4.6	Dec. 11, 1900	Dec. 11, 1915	25	1 15	1 15
John O. Fordham	97	Long Island sound	66.2	July 25, 1900	July 25, 1915	25	16 55	16 55
John O. Fordham	231	Pelham bay	5.8	June 10, 1902	June 10, 1917	25	1 45	1 45
John O. Fordham	236	Pelham bay	13.0	Mar. 26, 1909	Mar. 26, 1924	25	3 25	3 25
W. R. Fordham	263	Pelham bay	1.4	May 13, 1902	May 13, 1917	25	35	35
W. R. Fordham	262	Pelham bay	6.4	May 13, 1902	May 13, 1917	25	1 60	1 60

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SCHEDULE "A"—(*Continued*)

NAME	Lot No.	Location	Acres	Lease granted	Lease expires	Rate of rental	Annual rental	Annual tax
Lars Larsen	8	Hempstead harbor	.6	Dec. 14, 1910	Dec. 14, 1925	$2 00	$1 20	$0 15
Lars Larsen	11	Hempstead harbor	2.0	Dec. 14, 1910	Dec. 14, 1925	2 00	4 00	50
Lars Larsen	13	Hempstead harbor	1.2	Dec. 14, 1910	Dec. 14, 1925	2 00	2 40	30
Cornelius Leary	12	Hempstead harbor	2.2	Dec. 14, 1910	Dec. 14, 1925	2 00	4 40	55
Azel F. Merrell	126	Long Island sound	33.6	July 13, 1909	July 13, 1924	2 00	67 20	8 40
Azel F. Merrell	312	Long Island sound	159.4	July 13, 1909	July 13, 1924	2 00	318 80	39 85
Azel F. Merrell	313	Long Island sound	126.0	July 13, 1909	July 13, 1924	2 00	252 00	31 50
Azel F. Merrell	316	Long Island sound	57.0	May 11, 1910	May 11, 1925	2 00	114 00	14 25
Azel F. Merrell	974	Raritan bay	1.0	Jan. 6, 1909	Jan. 6, 1924	2 00	2 00	25
Azel F. Merrell	982	Raritan bay	45.8	Nov. 23, 1910	Nov. 23, 1925	2 00	91 60	11 45
Lucretia B. Morey	940	Raritan bay	1.7	July 8, 1902	July 8, 1917	25	43	43
John I. Merrell	919	Raritan bay	14.4	Aug. 15, 1898	Aug. 15, 1913	25	3 60	3 60
Henry S. Marshall	761	Raritan bay	3.0	Dec. 8, 1903	Dec. 8, 1918	25	75	75
Henry S. Marshall	764	Raritan bay	3.0	Dec. 8, 1903	Dec. 8, 1918	25	75	75
Rudolph Merrell	311	Long Island sound	108.0	July 13, 1909	July 13, 1924	2 00	216 00	27 00
Merrell & Burbank	933	Raritan bay	44.4	Sept. 20, 1910	Sept. 20, 1925	2 00	88 80	11 10
Merrell & Burbank	928B	Raritan bay	25.0	Sept. 20, 1910	Sept. 20, 1925	2 00	50 00	6 25
R. R. Mott	6	Hempstead harbor	1.4	Dec. 14, 1910	Dec. 14, 1925	2 00	2 80	35
Timothy T. Mott	7	Hempstead harbor	1.2	Dec. 14, 1910	Dec. 14, 1925	2 00	2 40	30
Merrell & Bayles	3	Hempstead harbor	5.6	Dec. 14, 1910	Dec. 14, 1925	2 00	11 20	1 40
Merrell & Bayles	5	Hempstead harbor	19.0	Dec. 14, 1910	Dec. 14, 1925	2 00	38 00	4 75
William H. Morris	276	East Chester bay	2.6	Aug. 26, 1912	Aug. 26, 1927	2 00	5 20	65
E. H. Mackey, Jr	93C	Long Island sound	27.0	April 23, 1900	April 23, 1950	25	6 75	6 75
E. H. Mackey, Jr	90	Long Island sound	34.0	April 10, 1900	April 10, 1915	25	8 50	8 50
E. H. Mackey, Jr	121A	Long Island sound	25.2	June 14, 1904	June 14, 1919	25	6 30	6 30
Benjamin Merrett	301	Long Island sound	.8	Mar. 11, 1902	Mar. 11, 1917	25	20	20
Benjamin Merrett	302	Long Island sound	1.0	Mar. 11, 1902	Mar. 11, 1917	25	25	25
Benjamin Merrett	303	Long Island sound	1.4	Mar. 11, 1902	Mar. 11, 1917	25	35	35
Benjamin Merrett	325	Long Island sound	8.0	Nov. 20, 1911	Nov. 20, 1926	2 00	16 00	2 00
H. E. Mackey	93E	Long Island sound	14.1	April 23, 1900	April 23, 1950	25	3 53	3 53
William J. Mills	314	Long Island sound	20.0	Sept. 13, 1909	Sept. 13, 1924	2 00	40 00	5 00
William J. Mills	Several	Long Island sound	110.0	Sept. 13, 1909	Sept. 13, 1924	2 00	220 00	27 50
William J. Mills	Several	Long Island sound	294.0	July 3, 1911	July 3, 1926	2 00	588 00	73 50
William J. Mills	321	Long Island sound	40.0	Sept. 1, 1910	Sept. 1, 1925	2 00	20 00	10 00
William J. Mills	Several	Long Island sound	115.0	July 13, 1909	July 13, 1924	2 00	230 00	28 75
William J. Mills	4	Hempstead harbor	1.0	May 17, 1911	May 17, 1926	2 00	2 00	25
Mills & Ronik	Several	Long Island sound	75.0	July 13, 1909	July 13, 1924	2 00	150 00	18 75
Mills & Ronik	Plot A	Long Island sound	258.0	April 10, 1906	April 10, 1921	25	64 50	64 50
Matinecock Oyster Co	81	Long Island sound	38.4	Dec. 10, 1901	Dec. 10, 1916	25	9 60	9 60

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SCHEDULE "A" -- (*Concluded*)

NAME	Lot No.	Location	Acres	Lease granted	Lease expires	Rate of Rental.	Annual rental	Annual tax
Pausch Bros. Oyster Co.	Several	Long Island sound	150.0	May 10, 1904	May 10, 1919	$0 25	$37 50	$37 50
Pausch Bros. Oyster Co.	Several	Long Island sound	62.5	June 14, 1904	June 4, 1919	25	15 63	15 63
Pausch Bros. Oyster Co.	Several	Long Island sound	98.2	May 10, 1904	May 4, 1919	25	24 55	24 55
Pausch Bros. Oyster Co.	107	Long Island sound	116.6	Feb. 11, 1902	Feb. 11, 1917	25	29 15	29 15
Pausch Bros. Oyster Co.	108	Long Island sound	25.0	May 13, 1902	May 13, 1917	25	6 25	6 25
Pausch Bros. Oyster Co.	127	Long Island sound	17.6	Jan. 9, 1906	Jan. 9, 1921	25	4 40	4 40
Pausch Bros. Oyster Co.	315	Long Island sound	35.6	Mar. 9, 1910	Mar. 9, 1925	2 00	71 20	8 90
Pausch Bros. Oyster Co.	977	Raritan bay	144.0	June 6, 1910	June 6, 1925	2 00	288 00	36 00
Pausch Bros. Oyster Co.	990	Raritan bay	100.0	Sept. 28, 1911	Sept. 11, 1926	2 00	200 00	25 00
Pausch Bros. Oyster Co.	989	Raritan bay	200.0	Sept. 28, 1911	Sept. 11, 1926	2 00	400 00	50 00
Elmer I. Palmer	973	Raritan bay	32.0	Feb. 13, 1906	Feb. 13, 1921	25	8 00	8 00
Elmer I. Palmer	953	Raritan bay	4.6	Jan. 12, 1904	Jan. 12, 1919	25	1 15	1 15
Elmer I. Palmer	897	Raritan bay	32.8	April 10, 1906	April 10, 1921	25	8 20	8 20
Elmer I. Palmer	896	Raritan bay	15.0	April 10, 1906	April 10, 1921	25	3 75	3 75
Elmer I. Palmer	Several	Long Island sound	62.5	Sept. 13, 1904	Sept. 13, 1919	25	15 63	15 63
Wm. Ruddock	239	Long Island sound	6.0	Nov. 10, 1909	Nov. 10, 1924	25	1 50	1 50
George W. Robinson	912A	Raritan bay	3.0	Oct. 13, 1911	Oct. 13, 1926	2 00	6 00	75
Geo. M. Still, Inc	946	Raritan bay	5.4	Sept. 8, 1903	Sept. 8, 1918	25	1 35	1 35
Geo. M. Still, Inc	947	Raritan bay	1.4	Sept. 8, 1903	Sept. 8, 1918	25	35	35
Geo. M. Still, Inc	849	Raritan bay	6.8	Aug. 1, 1910	Aug. 1, 1935	2 00	13 60	1 70
Sealshipt Oyster System	924	Raritan bay	58.2	Jan. 11, 1898	Jan. 11, 1913	25	14 55	14 55
Sealshipt Oyster System	929	Raritan bay	43.6	April 11, 1899	April 11, 1914	25	10 90	10 90
Sealshipt Oyster System	966	Raritan bay	36.4	Nov. 10, 1903	Nov. 10, 1918	25	9 10	9 10
Sealshipt Oyster System	Several	Long Island sound	255.6	Dec. 12, 1905	Dec. 12, 1920	25	63 90	63 90
Sealshipt Oyster System	Plot B	Long Island sound	88.7	April 10, 1906	April 10, 1921	25	22 17	22 18
Sealshipt Oyster System	688	Raritan bay	3.6	April 13, 1909	April 13, 1924	2 00	7 20	90
Sealshipt Oyster System	Several	Long Island sound	60.0	July 13, 1909	July 13, 1924	2 00	120 00	15 00
Sealshipt Oyster System	Several	Long Island sound	65.0	July 13, 1909	July 13, 1924	2 00	130 00	16 25
S. A. Still	1000	Raritan bay	50.0	July 29, 1911	July 29, 1926	2 00	100 00	12 50
Sofield & Fraser	995	Raritan bay	104.4	July 25, 1911	July 25, 1926	2 00	208 80	26 10
Standard Oyster Co	902	Raritan bay	5.0	Nov. 28, 1910	Nov. 28, 1935	2 00	10 00	1 25
Standard Oyster Co	903	Raritan bay	6.3	Nov. 28, 1910	Nov. 28, 1935	2 00	12 60	1 58
Standard Oyster Co	904	Raritan bay	4.2	Nov. 28, 1910	Nov. 28, 1935	2 00	8 40	1 05
Standard Oyster Co	905	Raritan bay	4.3	Nov. 28, 1910	Nov. 28, 1935	2 00	8 60	1 08
Stubbs & Allen	93F	Long Island sound	16.8	April 23, 1900	April 23, 1950	25	4 20	4 20
Henry Stubbs	93A	Long Island sound	25.0	April 23, 1900	April 23, 1950	25	6 25	6 25
Henry Stubbs	94	Long Island sound	8.0	April 23, 1900	April 23, 1950	25	2 00	2 00
Josiah Thompson	91C	Long Island sound	18.2	April 10, 1900	April 10, 1950	25	4 55	4 55
Josiah Thompson	122	Long Island sound	4.4	April 12, 1904	April 12, 1919	25	1 10	1 10

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Josiah Thompson	123	Long Island sound	1.4	June 14, 1904	June 14, 1919	25		35			35
Josiah Thompson	323	Long Island sound	5.2	Dec. 14, 1910	Dec. 14, 1925	2 00		10 40			1 30
Samuel Thorn	105	Long Island sound	29.0	June 11, 1901	June 11, 1916	25		7 25			7 25
A. K., J. H. & E. S. Tilley	23	Smithtown bay	47.3	Oct. 11, 1904	Oct. 11, 1919	25		11 83			11 83
John H. Tilley	326	Long Island sound	30.4	Nov. 20, 1911	Nov. 20, 1926	2 00		60 80			7 60
Charles H. Vroom	Several	Long Island sound	20.6	Nov. 10, 1910	Nov. 10, 1925	2 00		41 20			5 15
Geo. H. Valentine	981	Raritan bay	11.4	Sept. 21, 1910	Sept. 21, 1925	2 00		22 80			2 85
Chas. Weber	105	Long Island sound	29.0	June 11, 1901	June 11, 1916	25		7 25			7 25
Chas. Weber	10	Hempstead harbor	.6	Dec. 14, 1910	Dec. 14, 1925	2 00		1 20			15
Chas. Weber	14	Hempstead harbor	1.6	Dec. 14, 1910	Dec. 14, 1925	2 00		3 20			40
Dennis F. Ward	290	East Chester bay	7.4	June 12, 1906	June 12, 1921	25		1 85			1 85
Dennis F. Ward	292	East Chester bay	9.0	June 12, 1906	June 12, 1921	25		2 25			2 25
Weber & Degenhardt	317	Hempstead harbor	22.0	Dec. 14, 1910	Dec. 14, 1925	2 00		44 00			5 50
Wansor & Whaley	84	Long Island sound	18.2	Sept. 9, 1893	Sept. 9, 1943	25		4 55			4 55
Whaley & Thompson	931	Long Island sound	20.2	April 23, 1900	April 23, 1950	25		5 05			5 05
Chas. H. Zorn	308	East Chester bay	2.0	Aug. 26, 1912	Aug. 26, 1927	2 00		4 00			50
Total			13,019.2								$3,254 80

SCHEDULE "A" — (*Concluded*)

NAME	Lot No.	Location	Acres	Lease granted	Lease expires	Rate of Rental.	Annual rental	Annual tax
Pausch Bros. Oyster Co.	Several	Long Island sound	150.0	May 10, 1904	May 10, 1919	$0 25	$37 50	$37 50
Pausch Bros. Oyster Co.	Several	Long Island sound	62.5	June 14, 1904	June 4, 1919	25	15 63	15 63
Pausch Bros. Oyster Co.	Several	Long Island sound	98.2	May 10, 1904	May 4, 1919	25	24 55	24 55
Pausch Bros. Oyster Co.	107	Long Island sound	116.6	Feb. 11, 1902	Feb. 11, 1917	25	29 15	29 15
Pausch Bros. Oyster Co.	108	Long Island sound	25.0	May 13, 1902	May 13, 1917	25	6 25	6 25
Pausch Bros. Oyster Co.	127	Long Island sound	17.6	Jan. 9, 1906	Jan. 9, 1921	25	4 40	4 40
Pausch Bros. Oyster Co.	315	Long Island sound	35.6	Mar. 9, 1910	Mar. 9, 1925	2 00	71 20	8 90
Pausch Bros. Oyster Co.	977	Raritan bay	144.0	June 6, 1910	June 6, 1925	2 00	288 00	36 00
Pausch Bros. Oyster Co.	990	Raritan bay	100.0	Sept. 28, 1911	Sept. 11, 1926	2 00	200 00	25 00
Pausch Bros. Oyster Co.	989	Raritan bay	200.0	Sept. 28, 1911	Sept. 11, 1926	2 00	400 00	50 00
Elmer I. Palmer	973	Raritan bay	32.0	Feb. 13, 1906	Feb. 13, 1921	25	8 00	8 00
Elmer I. Palmer	953	Raritan bay	4.6	Jan. 12, 1904	Jan. 12, 1919	25	1 15	1 15
Elmer I. Palmer	897	Raritan bay	32.8	April 10, 1906	April 10, 1921	25	8 20	8 20
Elmer I. Palmer	896	Raritan bay	15.0	April 10, 1906	April 10, 1921	25	3 75	3 75
Elmer I. Palmer	Several	Long Island sound	62.5	Sept. 13, 1904	Sept. 13, 1919	25	15 63	15 63
Wm. Ruddock	239	Long Island sound	6.0	Nov. 10, 1909	Nov. 10, 1924	25	1 50	1 50
George W. Robinson	912A	Raritan bay	3.0	Oct. 13, 1911	Oct. 13, 1926	2 00	6 00	75
Geo. M. Still, Inc	946	Raritan bay	5.4	Sept. 8, 1903	Sept. 8, 1918	25	1 35	1 35
Geo. M. Still, Inc	947	Raritan bay	1.4	Sept. 8, 1903	Sept. 8, 1918	25	35	35
Geo. M. Still, Inc	849	Raritan bay	6.8	Aug. 1, 1910	Aug. 1, 1935	2 00	13 60	1 70
Sealshipt Oyster System	924	Raritan bay	58.2	Jan. 11, 1898	Jan. 11, 1913	25	14 55	14 55
Sealshipt Oyster System	929	Raritan bay	43.6	April 11, 1899	April 11, 1914	25	10 90	10 90
Sealshipt Oyster System	966	Raritan bay	36.4	Nov. 10, 1903	Nov. 10, 1918	25	9 10	9 10
Sealshipt Oyster System	Several	Long Island sound	255.6	Dec. 12, 1905	Dec. 12, 1920	25	63 90	63 90
Sealshipt Oyster System	Plot B	Long Island sound	88.7	April 10, 1906	April 10, 1921	25	22 17	22 18
Sealshipt Oyster System	688	Raritan bay	3.6	April 13, 1909	April 13, 1924	2 00	7 20	90
Sealshipt Oyster System	Several	Long Island sound	60.0	July 13, 1909	July 13, 1924	2 00	120 00	15 00
Sealshipt Oyster System	Several	Long Island sound	65.0	July 13, 1909	July 13, 1924	2 00	130 00	16 25
S. A. Still	1000	Raritan bay	50.0	July 29, 1911	July 29, 1926	2 00	100 00	12 50
Sofield & Frazer	995	Raritan bay	104.4	July 25, 1911	July 25, 1926	2 00	208 80	26 10
Standard Oyster Co.	902	Raritan bay	5.0	Nov. 28, 1910	Nov. 28, 1935	2 00	10 00	1 25
Standard Oyster Co.	903	Raritan bay	6.3	Nov. 28, 1910	Nov. 28, 1935	2 00	12 60	1 58
Standard Oyster Co.	904	Raritan bay	4.2	Nov. 28, 1910	Nov. 28, 1935	2 00	8 40	1 05
Standard Oyster Co.	905	Raritan bay	4.3	Nov. 28, 1910	Nov. 28, 1935	2 00	8 60	1 08
Stubbs & Allen	93F	Long Island sound	16.8	April 23, 1900	April 23, 1950	25	4 20	4 20
Henry Stubbs	93A	Long Island sound	25.0	April 23, 1900	April 23, 1950	25	6 25	6 25
Henry Stubbs	94	Long Island sound	8.0	April 23, 1900	April 23, 1950	25	2 00	2 00
Josiah Thompson	91C	Long Island sound	18.2	April 10, 1900	April 10, 1950	25	4 55	4 55
Josiah Thompson	122	Long Island sound	4.4	April 12, 1904	April 12, 1919	25	1 10	1 10

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Josiah Thompson	123	Long Island sound	1.4	June 14, 1904	June 14, 1919	25		35			35
Josiah Thompson	323	Long Island sound	5.2	Dec. 14, 1910	Dec. 14, 1925	2 00		10 40			1 30
Samuel Thorn	105	Long Island sound	29.0	June 11, 1901	June 11, 1916	25		7 25			7 25
A. K., J. H. & E. S. Tilley	23	Smithtown bay	47.3	Oct. 11, 1904	Oct. 11, 1919	25		11 83			11 83
John H. Tilley	326	Long Island sound	30.4	Nov. 20, 1911	Nov. 20, 1926	2 00		60 80			7 60
Charles H. Vroom	Several	Long Island sound	20.6	Nov. 10, 1910	Nov. 10, 1925	2 00		41 20			5 15
Geo. H. Valentine	981	Raritan bay	11.4	Sept. 21, 1910	Sept. 21, 1925	2 00		22 80			2 85
Chas. Weber	105	Long Island sound	29.0	June 11, 1901	June 11, 1916	25		7 25			7 25
Chas. Weber	10	Hempstead harbor	.6	Dec. 14, 1910	Dec. 14, 1925	2 00		1 20			15
Chas. Weber	14	Hempstead harbor	1.6	Dec. 14, 1910	Dec. 14, 1925	2 00		3 20			40
Dennis F. Ward	290	East Chester bay	7.4	June 12, 1906	June 12, 1921	25		1 85			1 85
Dennis F. Ward	292	East Chester bay	9.0	June 12, 1906	June 12, 1921	25		2 25			2 25
Weber & Degenhardt	317	Hempstead harbor	22.0	Dec. 14, 1910	Dec. 14, 1925	2 00		44 00			5 50
Wansor & Whaley	84	Long Island sound	18.2	Sept. 9, 1893	Sept. 9, 1943	25		4 55			4 55
Whaley & Thompson	93L	Long Island sound	20.2	April 23, 1900	April 23, 1950	25		5 05			5 05
Chas. H. Zorn	308	East Chester bay	2.0	Aug. 26, 1912	Aug. 26, 1927	2 00		4 00			50
Total			13,019.2								$3,254 80

SCHEDULE "B"

NAME	Lot No.	Location	Acres	Lease granted	Surrendered to City of New York	Annual tax
John Abrams	294	Jamaica bay	3.8	Aug. 9, 1898	Oct. 1, 1912	$0 95
John Abrams	295	Jamaica bay	1.4	Aug. 9, 1898	Oct. 1, 1912	35
S. D. Abrams, Jr	401	Jamaica bay	2.8	July 18, 1898	Oct. 1, 1912	70
S. D. Abrams, Jr	402	Jamaica bay	0.4	July 18, 1898	Oct. 1, 1912	10
S. D. Abrams, Jr	435	Jamaica bay	3.0	Mar. 21, 1910	Oct. 1, 1912	75
S. D. Abrams, Jr	384	Jamaica bay	2.6	Mar. 21, 1910	Oct. 1, 1912	65
Wm. H. Abrams	280	Jamaica bay	1.4	Nov. 9, 1897	Oct. 1, 1912	35
Gustave Albright	395	Jamaica bay	2.0	July 18, 1889	Oct. 1, 1912	50
Gustave Albright	399	Jamaica bay	1.4	July 18, 1889	Oct. 1, 1912	35
Emma Abrams	268	Jamaica bay	2.0	Oct. 18, 1909	Oct. 1, 1912	50
Emma Abrams	267	Jamaica bay	2.2	Oct. 18, 1909	Oct. 1, 1912	55
Maj. G. Abrams	628	Jamaica bay	0.6	Oct. 29, 1909	Oct. 1, 1912	15
Floyd Abrams	398	Jamaica bay	1.2	Jan. 23, 1911	Oct. 1, 1912	30
Amberman & Bedell	505	Jamaica bay	6.2	Feb. 9, 1911	Oct. 1, 1912	1 55
Henry Burmester	311	Jamaica bay	9.2	June 27, 1898	Oct. 1, 1912	2 30
Henry Burmester	29	Jamaica bay	2.6	Aug. 11, 1908	Oct. 1, 1912	65
Henry Burmester	28	Jamaica bay	2.6	Aug. 11, 1908	Oct. 1, 1912	65
Henry Burmester	554	Jamaica bay	8.6	Aug. 11, 1908	Oct. 1, 1912	2 15
Henry Burmester	63	Jamaica bay	6.2	Aug. 11, 1908	Oct. 1, 1912	1 55
Henry Borwegen	310	Jamaica bay	17.0	April 12, 1898	Oct. 1, 1912	4 25
Henry Borwegen	50	Jamaica bay	1.6	Aug. 31, 1908	Oct. 1, 1912	40
Henry Borwegen	48	Jamaica bay	2.8	Aug. 31, 1908	Oct. 1, 1912	70
James W. Barnes	300	Jamaica bay	7.2	Feb. 8, 1898	Oct. 1, 1912	1 80
Garret S. Braisted	482	Jamaica bay	6.0	Dec. 14, 1897	Oct. 1, 1912	1 50
James Boerum	475	Jamaica bay	6.2	July 18, 1898	Oct. 1, 1912	1 55
F. A. Brimlow	320	Jamaica bay	3.4	Mar. 8, 1898	Oct. 1, 1912	85
James A. Bailey	603	Jamaica bay	33.2	Aug. 12, 1902	Oct. 1, 1912	8 30
C. Josephine Biggs	149	Jamaica bay	1.6	June 26, 1908	Oct. 1, 1912	40
C. Josephine Biggs	144	Jamaica bay	3.0	June 26, 1908	Oct. 1, 1912	75
C. Josephine Biggs	524	Jamaica bay	4.0	June 26, 1908	Oct. 1, 1912	1 00
C. Josephine Biggs	150	Jamaica bay	7.2	June 26, 1908	Oct. 1, 1912	1 80
C. Josephine Biggs	151	Jamaica bay	0.6	July 6, 1908	Oct. 1, 1912	15
John D. Bush	95	Jamaica bay	1.2	Aug. 31, 1908	Oct. 1, 1912	30
H. W. Behncke	31	Jamaica bay	2.6	Aug. 23, 1909	Oct. 1, 1912	65
Mary R. Behncke	167	Jamaica bay	5.8	Aug. 23, 1909	Oct. 1, 1912	1 45
Richard Biggs, Sr	627	Jamaica bay	3.2	Oct. 29, 1909	Oct. 1, 1912	80
Wm. C. Baldwin	199	Jamaica bay	5.4	June 2, 1910	Oct. 1, 1912	1 35
J. G. H. Bedell	455	Jamaica bay	5.4	Feb. 9, 1911	Oct. 1, 1912	1 35
William J. Campbell	510	Jamaica bay	6.2	Nov. 14, 1899	Oct. 1, 1912	1 55

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John O. Carlson	605	Jamaica bay	8.8	Mar. 11, 1902	Oct.	1, 1912	2	20		
George A. Carman	118	Jamaica bay	3.4	Mar. 9, 1910	Oct.	1, 1912		85		
George A. Carman	218	Jamaica bay	4.2	Mar. 9, 1910	Oct.	1, 1912	1	05		
Est. of Nathaniel Carman	492	Jamaica bay	5.8	Jan. 10, 1899	Oct.	1, 1912	1	45		
Est. of Nathaniel Carman	116	Jamaica bay	0.6	Mar. 22, 1910	Oct.	1, 1912			15	
Est. of Nathaniel Carman	115	Jamaica bay	2.4	Mar. 23, 1910	Oct.	1, 1912			60	
Warren Cornell	453	Jamaica bay	8.6	Mar. 23, 1910	Oct.	1, 1912	2	15		
Warren Cornell	449	Jamaica bay	2.0	Mar. 23, 1910	Oct.	1, 1912		50		
Warren Cornell	372	Jamaica bay	3.0	Mar. 23, 1910	Oct.	1, 1912	1	25		
Henry Cornell	400	Jamaica bay	4.4	April 4, 1910	Oct.	1, 1912	1	10		
Hiram Cadmus	461	Jamaica bay	5.4	April 8, 1910	Oct.	1, 1912	1	35		
Cornell & Palmer	360	Jamaica bay	12.0	Jan. 20, 1911	Oct.	1, 1912	3	00		
Walter C. Denton	287	Jamaica bay	11.4	June 9, 1898	Oct.	1, 1912	2	85		
Walter C. Denton	344	Jamaica bay	4.4	May 10, 1898	Oct.	1, 1912	1	10		
Henry W. Davis	343	Jamaica bay	10.6	Jan. 11, 1898	Oct.	1, 1912	1	65		
Henry W. Davis	506	Jamaica bay	5.6	Oct. 20, 1909	Oct.	1, 1912	1	40		
Henry W. Davis	329	Jamaica bay	7.4	Oct. 20, 1909	Oct.	1, 1912	1	85		
W. H. Dickens	250	Jamaica bay	2.8	Aug. 18, 1908	Oct.	1, 1912			70	
George Dickens	43	Jamaica bay	3.2	Oct. 18, 1909	Oct.	1, 1912			80	
Elisabeth Denice	238	Jamaica bay	5.4	Nov. 6, 1909	Oct.	1, 1912	1		35	
Elisabeth Denice	259	Jamaica bay	3.6	Nov. 6, 1909	Oct.	1, 1912			90	
W. H. Dickens	61	Jamaica bay	7.8	Oct. 18, 1909	Oct.	1, 1912	1		95	
W. H. Dickens	213	Jamaica bay	5.0	Mar. 14, 1910	Oct.	1, 1912	1		25	
George W. Doughty	386	Jamaica bay	1.8	Mar. 21, 1910	Oct.	1, 1912			45	
George W. Doughty	415	Jamaica bay	4.4	Mar. 21, 1910	Oct.	1, 1912	1		10	
George W. Doughty	443	Jamaica bay	4.8	Mar. 21, 1910	Oct.	1, 1912	1		20	
George W. Doughty	383	Jamaica bay	5.0	Mar. 21, 1910	Oct.	1, 1912	1		25	
George W. Doughty	377	Jamaica bay	2.0	Mar. 21, 1910	Oct.	1, 1912			50	
Charles E. Denton	340	Jamaica bay	8.2	June 14, 1898	Oct.	1, 1912	2		05	
Charles E. Denton	341	Jamaica bay	5.4	Nov. 12, 1895	Oct.	1, 1912	1		35	
Charles E. Denton	153	Jamaica bay	2.2	Feb. 9, 1911	Oct.	1, 1912			55	
Charles E. Denton	152	Jamaica bay	3.2	Feb. 9, 1911	Oct.	1, 1912			80	
William B. Dooley	457	Jamaica bay	2.0	Mar. 16, 1911	Oct.	1, 1912			50	
William B. Dooley	463	Jamaica bay	4.0	Mar. 16, 1911	Oct.	1, 1912	1		00	
Edward Dooley	459	Jamaica bay	6.6	Mar. 18, 1911	Oct.	1, 1912	1		65	
John T. Ford	289	Jamaica bay	4.6	June 14, 1898	Oct.	1, 1912	1		15	
W. S. Ford	179	Jamaica bay	4.4	Mar. 18, 1910	Oct.	1, 1912	1		10	
Jacob Frederick	506	Jamaica bay	22.2	June 11, 1901	Oct.	1, 1912	5		55	
John Frederick	458	Jamaica bay	7.6	April 8, 1910	Oct.	1, 1912	1		90	
Glenwood Oyster Co	609	Jamaica bay	12.6	Mar. 11, 1902	Oct.	1, 1912	3		15	
Josephine Geffken	4	Jamaica bay	1.4	June 26, 1908	Oct.	1, 1912			35	
Josephine Geffken	5	Jamaica bay	1.8	June 26, 1908	Oct.	1, 1912			45	
Albert Geffken	557	Jamaica bay	0.8	Sept. 11, 1908	Oct.	1, 1912			20	
Albert Geffken	2	Jamaica bay	1.0	Sept. 11, 1908	Oct.	1, 1912			25	
Chas. Gatson	597	Jamaica bay	13.6	Aug. 12, 1902	Oct.	1, 1912	3		40	
Robt. W. Hoyt	334	Jamaica bay	1.0	June 27, 1898	Oct.	1, 1912			25	
George H. Hicks	376	Jamaica bay	2.0	July 18, 1898	Oct.	1, 1912			50	
George H. Hicks	378	Jamaica bay	3.2	July 18, 1898	Oct.	1, 1912			80	

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SCHEDULE "B"

NAME	Lot No.	Location	Acres	Lease granted	Surrendered to City of New York	Annual tax
John Abrams	294	Jamaica bay	3.8	Aug. 9, 1898	Oct. 1, 1912	$0 95
John Abrams	295	Jamaica bay	1.4	Aug. 9, 1898	Oct. 1, 1912	35
S. D. Abrams, Jr	401	Jamaica bay	2.8	July 18, 1898	Oct. 1, 1912	70
S. D. Abrams, Jr	402	Jamaica bay	0.4	July 18, 1898	Oct. 1, 1912	10
S. D. Abrams, Jr	435	Jamaica bay	3.0	Mar. 21, 1910	Oct. 1, 1912	75
S. D. Abrams, Jr	384	Jamaica bay	2.6	Mar. 21, 1910	Oct. 1, 1912	65
Wm. H. Abrams	280	Jamaica bay	1.4	Nov. 9, 1897	Oct. 1, 1912	35
Gustave Albright	395	Jamaica bay	2.0	July 18, 1889	Oct. 1, 1912	50
Gustave Albright	399	Jamaica bay	1.4	July 18, 1889	Oct. 1, 1912	35
Emma Abrams	268	Jamaica bay	2.0	Oct. 18, 1909	Oct. 1, 1912	50
Emma Abrams	267	Jamaica bay	2.2	Oct. 18, 1909	Oct. 1, 1912	55
Maj. G. Abrams	628	Jamaica bay	0.6	Oct. 29, 1909	Oct. 1, 1912	15
Floyd Abrams	398	Jamaica bay	1.2	Jan. 23, 1911	Oct. 1, 1912	30
Amberman & Bedell	505	Jamaica bay	6.2	Feb. 9, 1911	Oct. 1, 1912	1 55
Henry Burmester	311	Jamaica bay	9.2	June 27, 1898	Oct. 1, 1912	2 30
Henry Burmester	29	Jamaica bay	2.6	Aug. 11, 1908	Oct. 1, 1912	65
Henry Burmester	28	Jamaica bay	2.6	Aug. 11, 1908	Oct. 1, 1912	65
Henry Burmester	554	Jamaica bay	8.6	Aug. 11, 1908	Oct. 1, 1912	2 15
Henry Burmester	63	Jamaica bay	6.2	Aug. 11, 1908	Oct. 1, 1912	1 55
Henry Borwegen	310	Jamaica bay	17.0	April 12, 1898	Oct. 1, 1912	4 25
Henry Borwegen	50	Jamaica bay	1.6	Aug. 31, 1908	Oct. 1, 1912	40
Henry Borwegen	48	Jamaica bay	2.8	Aug. 31, 1908	Oct. 1, 1912	70
James W. Barnes	300	Jamaica bay	7.2	Feb. 8, 1898	Oct. 1, 1912	1 80
Garret S. Braisted	482	Jamaica bay	6.0	Dec. 14, 1897	Oct. 1, 1912	1 50
James Boerum	475	Jamaica bay	6.2	July 18, 1898	Oct. 1, 1912	1 55
F. A. Brimlow	320	Jamaica bay	3.4	Mar. 8, 1898	Oct. 1, 1912	85
James A. Bailey	603	Jamaica bay	33.2	Aug. 12, 1902	Oct. 1, 1912	8 30
C. Josephine Biggs	149	Jamaica bay	1.6	June 26, 1908	Oct. 1, 1912	40
C. Josephine Biggs	144	Jamaica bay	3.0	June 26, 1908	Oct. 1, 1912	75
C. Josephine Biggs	524	Jamaica bay	4.0	June 26, 1908	Oct. 1, 1912	1 00
C. Josephine Biggs	150	Jamaica bay	7.2	June 26, 1908	Oct. 1, 1912	1 80
C. Josephine Biggs	151	Jamaica bay	0.6	July 6, 1908	Oct. 1, 1912	15
John D. Bush	95	Jamaica bay	1.2	Aug. 31, 1908	Oct. 1, 1912	30
H. W. Behncke	31	Jamaica bay	2.6	Aug. 23, 1909	Oct 1, 1912	65
Mary R. Behncke	167	Jamaica bay	5.8	Aug. 23, 1909	Oct. 1, 1912	1 45
Richard Biggs, Sr	627	Jamaica bay	3.2	Oct. 29, 1909	Oct. 1, 1912	80
Wm. C. Baldwin	199	Jamaica bay	5.4	June 2, 1910	Oct. 1, 1912	1 35
J. G. H. Bedell	455	Jamaica bay	5.4	Feb. 9, 1911	Oct. 1, 1912	1 35
William J. Campbell	510	Jamaica bay	6.2	Nov. 14, 1899	Oct. 1, 1912	1 55

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John O. Carlson	605	Jamaica bay	8.8	Mar. 11, 1902	Oct. 1, 1912	2	20
George A. Carman	118	Jamaica bay	3.4	Mar. 9, 1910	Oct. 1, 1912		85
George A. Carman	218	Jamaica bay	4.2	Mar. 9, 1910	Oct. 1, 1912	1	05
Est. of Nathaniel Carman	492	Jamaica bay	5.8	Jan. 10, 1899	Oct. 1, 1912	1	45
Est. of Nathaniel Carman	116	Jamaica bay	0.6	Mar. 22, 1910	Oct. 1, 1912		15
Est. of Nathaniel Carman	115	Jamaica bay	2.4	Mar. 22, 1910	Oct. 1, 1912		60
Warren Cornell	453	Jamaica bay	8.6	Mar. 23, 1910	Oct. 1, 1912	2	15
Warren Cornell	449	Jamaica bay	2.0	Mar. 23, 1910	Oct. 1, 1912		50
Warren Cornell	372	Jamaica bay	5.0	Mar. 23, 1910	Oct. 1, 1912	1	25
Henry Cornell	409	Jamaica bay	4.4	April 4, 1910	Oct. 1, 1912	1	10
Hiram Cadmus	461	Jamaica bay	5.4	April 8, 1910	Oct. 1, 1912	1	35
Cornell & Palmer	369	Jamaica bay	12.0	Jan. 20, 1911	Oct. 1, 1912	3	00
Walter C. Denton	287	Jamaica bay	11.4	June 9, 1898	Oct. 1, 1912	2	85
Walter C. Denton	344	Jamaica bay	4.4	May 10, 1898	Oct. 1, 1912	1	10
Henry W. Davis	343	Jamaica bay	10.6	Jan. 11, 1898	Oct. 1, 1912		65
Henry W. Davis	506	Jamaica bay	5.6	Oct. 20, 1909	Oct. 1, 1912	1	40
Henry W. Davis	329	Jamaica bay	7.4	Oct. 20, 1909	Oct. 1, 1912	1	85
W. H. Dickens	250	Jamaica bay	2.8	Aug. 18, 1908	Oct. 1, 1912		70
George Dickens	43	Jamaica bay	3.2	Oct. 18, 1909	Oct. 1, 1912		80
Elizabeth Derice	258	Jamaica bay	5.4	Nov. 6, 1909	Oct. 1, 1912	1	35
Elizabeth Denice	259	Jamaica bay	3.6	Nov. 6, 1909	Oct. 1, 1912		90
W. H. Dickens	61	Jamaica bay	7.8	Oct. 18, 1909	Oct. 1, 1912	1	95
W. H. Dickens	213	Jamaica bay	5.0	Mar. 14, 1910	Oct. 1, 1912	1	25
George W. Doughty	386	Jamaica bay	1.8	Mar. 21, 1910	Oct. 1, 1912		45
George W. Doughty	415	Jamaica bay	4.4	Mar. 21, 1910	Oct. 1, 1912	1	10
George W. Doughty	443	Jamaica bay	4.8	Mar. 21, 1910	Oct. 1, 1912	1	20
George W. Doughty	383	Jamaica bay	5.0	Mar. 21, 1910	Oct. 1, 1912	1	25
George W. Doughty	377	Jamaica bay	2.0	Mar. 21, 1910	Oct. 1, 1912		50
Charles E. Denton	340	Jamaica bay	8.2	June 14, 1898	Oct. 1, 1912	2	05
Charles E. Denton	341	Jamaica bay	5.4	Nov. 12, 1895	Oct. 1, 1912	1	35
Charles E. Denton	153	Jamaica bay	2.2	Feb. 9, 1911	Oct. 1, 1912		55
Charles E. Denton	152	Jamaica bay	3.2	Feb. 9, 1911	Oct. 1, 1912		80
William B. Dooley	457	Jamaica bay	2.0	Mar. 16, 1911	Oct. 1, 1912		50
William B. Dooley	463	Jamaica bay	4.0	Mar. 16, 1911	Oct. 1, 1912	1	00
Edward Dooley	459	Jamaica bay	6.6	Mar. 18, 1911	Oct. 1, 1912	1	65
John T. Ford	289	Jamaica bay	4.6	June 14, 1898	Oct. 1, 1912	1	15
W. S. Ford	179	Jamaica bay	4.4	Mar. 18, 1910	Oct. 1, 1912	1	10
Jacob Frederick	566	Jamaica bay	22.2	June 11, 1901	Oct. 1, 1912	5	55
John Frederick	458	Jamaica bay	7.6	April 8, 1910	Oct. 1, 1912	1	90
Glenwood Oyster Co	609	Jamaica bay	12.6	Mar. 11, 1902	Oct. 1, 1912	3	15
Josephine Geffken	4	Jamaica bay	1.4	June 26, 1908	Oct. 1, 1912		35
Josephine Geffken	5	Jamaica bay	1.8	June 26, 1908	Oct. 1, 1912		45
Albert Geffken	557	Jamaica bay	0.8	Sept. 11, 1908	Oct. 1, 1912		20
Albert Geffken	2	Jamaica bay	1.0	Sept. 11, 1908	Oct. 1, 1912		25
Chas. Gatson	597	Jamaica bay	13.6	Aug. 12, 1902	Oct. 1, 1912	3	40
Robt. W. Hoyt	334	Jamaica bay	1.0	June 27, 1898	Oct. 1, 1912		25
George H. Hicks	376	Jamaica bay	2.0	July 18, 1898	Oct. 1, 1912		50
George H. Hicks	378	Jamaica bay	3.2	July 18, 1898	Oct. 1, 1912		80

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SCHEDULE "B" — (*Continued*)

NAME	Lot No.	Location	Acres	Lease granted	Surrendered to City of New York	Annual tax
George H. Hicks	407	Jamaica bay	7.8	July 18, 1898	Oct. 1, 1912	$1 95
Haviland Odell	368	Jamaica bay	4.6	Aug. 15, 1898	Oct. 1, 1912	1 15
Haviland Odell	465	Jamaica bay	3.6	Aug. 15, 1898	Oct. 1, 1912	90
A. H. Hasck	108	Jamaica bay	4.2	Aug. 31, 1908	Oct. 1, 1912	1 05
A. H. Hasck	309	Jamaica bay	13.2	Aug. 31, 1908	Oct. 1, 1912	3 30
A. H. Hasck	7	Jamaica bay	2.2	Aug. 31, 1908	Oct. 1, 1912	55
A. H. Hasck	12½	Jamaica bay	1.8	Mar. 14, 1910	Oct. 1, 1912	45
John Hansen	307	Jamaica bay	10.2	Nov. 28, 1908	Oct. 1, 1912	2 55
John Hansen	34	Jamaica bay	2.8	Aug. 31, 1908	Oct. 1, 1912	70
John Hansen	69	Jamaica bay	20.2	Aug. 31, 1908	Oct. 1, 1912	5 05
John Hansen	71	Jamaica bay	2.8	Aug. 31, 1908	Oct. 1, 1912	70
E. Otis Hovey	600	Jamaica bay	42.8	May 9, 1910	Oct. 1, 1912	10 70
E. Otis Hovey	587	Jamaica bay	11.0	May 9, 1910	Oct. 1, 1912	2 75
E. Otis Hovey	617	Jamaica bay	5.6	May 9, 1910	Oct. 1, 1912	1 40
E. Otis Hovey	198	Jamaica bay	41.6	May 9, 1910	Oct. 1, 1912	10 40
E. Otis Hovey	227	Jamaica bay	3.0	May 9, 1910	Oct. 1, 1912	75
E. Otis Hovey	301	Jamaica bay	14.8	May 9, 1910	Oct. 1, 1912	3 70
E. Otis Hovey	618	Jamaica bay	17.0	May 9, 1910	Oct. 1, 1912	4 25
Christian Hoobs	619	Jamaica bay	3.6	Dec. 29, 1908	Oct. 1, 1912	90
D. F. Huffmire	264	Jamaica bay	1.6	Oct. 18, 1909	Oct. 1, 1912	40
L. L. Huffmire	262	Jamaica bay	12.4	Oct. 18, 1909	Oct. 1, 1912	3 10
L. L. Huffmire	265	Jamaica bay	1.4	Oct. 18, 1909	Oct. 1, 1912	35
L. L. Huffmire	263	Jamaica bay	5.4	Oct. 18, 1909	Oct. 1, 1912	1 35
Wynant Huffmire	355	Jamaica bay	7.2	Oct. 18, 1909	Oct. 1, 1912	1 80
Wynant Huffmire	562	Jamaica bay	5.6	Oct. 18, 1909	Oct. 1, 1912	1 40
Wynant Huffmire	495	Jamaica bay	3.0	Oct. 18, 1909	Oct. 1, 1912	75
W. J. Hewlett	539	Jamaica bay	8.4	Oct. 20, 1909	Oct. 1, 1912	2 10
Jarvis Hicks	629	Jamaica bay	0.4	Oct. 29, 1909	Oct. 1, 1912	10
Jarvis Hicks	630	Jamaica bay	1.2	Oct. 29, 1909	Oct. 1, 1912	30
V. W. Housman	42	Jamaica bay	1.2	Oct. 18, 1909	Oct. 1, 1912	30
V. W. Housman	24	Jamaica bay	1.8	Oct. 18, 1909	Oct. 1, 1912	45
Arthur Johnson	558	Jamaica bay	4.0	Feb. 13, 1901	Oct. 1, 1912	1 00
David Jones	17	Jamaica bay	3.8	June 16, 1908	Oct. 1, 1912	95
David Jones	315	Jamaica bay	3.4	Feb. 8, 1898	Oct. 1, 1912	85
Richard Johnson	91	Jamaica bay	3.2	June 26, 1908	Oct. 1, 1912	80
Richard Johnson	92	Jamaica bay	1.8	June 26, 1908	Oct. 1, 1912	45
Mary Johnson	96	Jamaica bay	3.0	June 26, 1908	Oct. 1, 1912	75
Henry C. Johnson	620	Jamaica bay	1.6	Dec. 29, 1908	Oct. 1, 1912	40
Henry C. Johnson	439	Jamaica bay	3.0	Mar. 22, 1910	Oct. 1, 1912	75

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Henry C. Johnson	361	Jamaica bay	2.0	Mar. 22, 1910	Oct. 1, 1912				50
Henry C. Johnson	431	Jamaica bay	2.0	Mar. 22, 1910	Oct. 1, 1912				50
George H. Johnson	94	Jamaica bay	1.8	Sept. 11, 1908	Oct. 1, 1912				45
Jane Johnson	132	Jamaica bay	5.0	Sept. 11, 1908	Oct. 1, 1912			1	25
Ludwig Klee	208	Jamaica bay	0.4	Jan. 4, 1909	Oct. 1, 1912				10
Ludwig Klee	70	Jamaica bay	1.6	July 20, 1908	Oct. 1, 1912				40
William H. Lockwood	920	Jamaica bay	7.2	Aug. 9, 1898	Oct. 1, 1912			1	80
William H. Lockwood	925	Jamaica bay	3.8	June 13, 1899	Oct. 1, 1912				95
F. J. Lancaster	584	Jamaica bay	3.6	May 13, 1902	Oct. 1, 1912				90
Asel F. Merrell	20	Jamaica bay	5.4	Mar. 14, 1910	Oct. 1, 1912			1	35
Asel F. Merrell	19	Jamaica bay	2.8	Mar. 14, 1910	Oct. 1, 1912				70
Asel F. Merrell	3	Jamaica bay	3.8	Mar. 14, 1910	Oct. 1, 1912				95
Asel F. Merrell	9	Jamaica bay	9.4	Mar. 14, 1910	Oct. 1, 1912			2	35
Asel F. Merrell	146	Jamaica bay	4.2	Mar. 14, 1910	Oct. 1, 1912			1	05
Asel F. Merrell	200	Jamaica bay	7.2	Mar. 14, 1910	Oct. 1, 1912			1	80
Asel F. Merrell	391	Jamaica bay	2.0	Mar. 14, 1910	Oct. 1, 1912				50
Asel F. Merrell	392	Jamaica bay	1.6	Mar. 14, 1910	Oct. 1, 1912				40
Asel F. Merrell	535	Jamaica bay	4.2	Mar. 14, 1910	Oct. 1, 1912			1	05
Asel F. Merrell	438	Jamaica bay	6.0	Mar. 14, 1910	Oct. 1, 1912			1	70
George S. Monroe	474	Jamaica bay	14.0	May 9, 1910	Oct. 1, 1912			3	50
Monroe & Remsen	464	Jamaica bay	6.0	May 9, 1910	Oct. 1, 1912			1	50
George H. Mott	403	Jamaica bay	0.4	Sept. 13, 1898	Oct. 1, 1912				10
George H. Mott	408	Jamaica bay	8.8	Aug. 15, 1898	Oct. 1, 1912			2	20
George H. Mott	424	Jamaica bay	2.4	Aug. 15, 1898	Oct. 1, 1912				60
George H. Mott	430	Jamaica bay	21.6	Sept. 13, 1898	Oct. 1, 1912			5	40
George H. Mott	395	Jamaica bay	2.0	July 18, 1898	Oct. 1, 1912				50
George H. Mott	507	Jamaica bay	3.4	Oct. 10, 1899	Oct. 1, 1912				85
William H. Morrison	551	Jamaica bay	1.2	Aug. 13, 1901	Oct. 1, 1912				30
William H. Morrison	159	Jamaica bay	5.6	May 11, 1910	Oct. 1, 1912			1	40
William H. Morrison	345A	Jamaica bay	3.4	May 11, 1910	Oct. 1, 1912				85
Ferdinand Moller	87	Jamaica bay	2.0	Aug. 31, 1908	Oct. 1, 1912				50
Ferdinand Moller	86	Jamaica bay	1.8	Aug. 31, 1908	Oct. 1, 1912				45
Ferdinand Moller	72	Jamaica bay	2.4	Aug. 31, 1908	Oct. 1, 1912				60
Ferdinand Moller	530	Jamaica bay	3.4	Aug. 31, 1908	Oct. 1, 1912				85
Ferdinand Moller	297	Jamaica bay	2.0	Aug. 31, 1908	Oct. 1, 1912				50
Ferdinand Moller	296	Jamaica bay	2.4	Aug. 31, 1908	Oct. 1, 1912				60
Ferdinand Moller	6	Jamaica bay	2.6	Aug. 31, 1908	Oct. 1, 1912				65
Peter Miller	16	Jamaica bay	4.8	Feb. 4, 1909	Oct. 1, 1912			1	20
Peter Miller	1	Jamaica bay	3.8	Feb. 4, 1909	Oct. 1, 1912				95
James H. McCrodden	22	Jamaica bay	4.0	Mar. 18, 1910	Oct. 1, 1912			1	00
Charles McCrodden	221	Jamaica bay	9.4	Oct. 12, 1897	Oct. 1, 1912			2	35
Charles McCrodden	606	Jamaica bay	9.0	April 8, 1902	Oct. 1, 1912			2	25
John H. McCrodden	517	Jamaica bay	4.6	Dec. 12, 1899	Oct. 1, 1912			1	15
Clara McCrodden	23	Jamaica bay	2.6	Mar. 18, 1910	Oct. 1, 1912				65
William Oelrichs	67	Jamaica bay	3.8	Aug. 11, 1908	Oct. 1, 1912				95
William Oelrichs	303	Jamaica bay	3.0	June 27, 1898	Oct. 1, 1912				75
William Oelrichs	65	Jamaica bay	2.0	Aug. 11, 1908	Oct. 1, 1912				50
William Oelrichs	302	Jamaica bay	10.2	Aug. 11, 1908	Oct. 1, 1912			2	55

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SCHEDULE "B" — (*Continued*)

NAME	Lot No.	Location	Acres	Lease granted	Surrendered to City of New York	Annual tax
Annie Oelrichs	66	Jamaica bay	5.2	Aug. 11, 1908	Oct. 1, 1912	$1 30
Palmer & Cornell	369	Jamaica bay	12.0	Jan. 20, 1911	Oct. 1, 1912	3 00
Carl Peers	308	Jamaica bay	7.6	Aug. 9, 1898	Oct. 1, 1912	1 90
Carl Peers	133	Jamaica bay	3.8	June 22, 1908	Oct. 1, 1912	95
Carl Peers	215	Jamaica bay	2.8	June 22, 1908	Oct. 1, 1912	70
Thomas Pearsall	621	Jamaica bay	3.2	Dec. 29, 1908	Oct. 1, 1912	80
Thomas Pearsall	419	Jamaica bay	3.4	Mar. 22, 1910	Oct. 1, 1912	85
Thomas Pearsall	448	Jamaica bay	1.8	Mar. 22, 1910	Oct. 1, 1912	45
Thomas Pearsall	423	Jamaica bay	4.6	Mar. 22, 1910	Oct. 1, 1912	1 15
Thomas Pearsall	549	Jamaica bay	2.6	June 11, 1901	Oct. 1, 1912	65
Charles L. Pearsall	414	Jamaica bay	3.8	Mar. 23, 1910	Oct. 1, 1912	95
Charles L. Pearsall	421	Jamaica bay	15.6	Mar. 23, 1910	Oct. 1, 1912	3 90
John F. Quigley	8	Jamaica bay	3.6	Mar. 29, 1910	Oct. 1, 1912	90
Daniel Rowland	503	Jamaica bay	3.6	July 11, 1899	Oct. 1, 1912	90
Daniel Rowland	143	Jamaica bay	4.0	June 16, 1908	Oct. 1, 1912	1 00
Daniel Rowland	346	Jamaica bay	3.4	June 16, 1908	Oct. 1, 1912	85
Daniel Rowland	345B	Jamaica bay	5.6	May 10, 1910	Oct. 1, 1912	1 40
Joseph Ryder	288	Jamaica bay	2.0	Feb. 8, 1898	Oct. 1, 1912	50
Joseph Ryder	283	Jamaica bay	9.0	Mar. 8, 1898	Oct. 1, 1912	2 25
Willett A. Raynor	561	Jamaica bay	8.0	Aug. 13, 1901	Oct. 1, 1912	2 00
Willett A. Raynor	260	Jamaica bay	2.8	Oct. 1, 1909	Oct. 1, 1912	70
Willett A. Raynor	257	Jamaica bay	4.8	Oct. 1, 1909	Oct. 1, 1912	1 20
Willett A. Raynor	261	Jamaica bay	2.0	Oct. 18, 1909	Oct. 1, 1912	50
Rockaway Oyster Co	516	Jamaica bay	7.2	Dec. 12, 1899	Oct. 1, 1912	1 80
Rockaway Oyster Co	347	Jamaica bay	19.8	Jan. 11, 1898	Oct. 1, 1912	4 95
Rockaway Oyster Co	487	Jamaica bay	7.8	Jan. 10, 1898	Oct. 1, 1912	1 95
Rockaway Oyster Co	480	Jamaica bay	3.4	Sept. 13, 1898	Oct. 1, 1912	85
Rockaway Oyster Co	481	Jamaica bay	3.2	Oct. 11, 1898	Oct. 1, 1912	80
Rockaway Oyster Co	564	Jamaica bay	5.2	May 14, 1901	Oct. 1, 1912	1 30
Rockaway Oyster Co	84	Jamaica bay	3.0	July 22, 1908	Oct. 1, 1912	75
Rockaway Oyster Co	332	Jamaica bay	5.8	July 22, 1908	Oct. 1, 1912	1 45
Rockaway Oyster Co	85	Jamaica bay	1.8	July 22, 1908	Oct. 1, 1912	45
Rockaway Oyster Co	80	Jamaica bay	4.4	July 22, 1908	Oct. 1, 1912	1 10
Rockaway Oyster Co	79	Jamaica bay	1.8	Aug. 11, 1908	Oct. 1, 1912	45
Rockaway Oyster Co	158	Jamaica bay	6.6	June 27, 1908	Oct. 1, 1912	1 65
Rockaway Oyster Co	622	Jamaica bay	11.6	Dec. 29, 1908	Oct. 1, 1912	2 90
Rockaway Oyster Co	135	Jamaica bay	4.2	June 16, 1908	Oct. 1, 1912	1 05
Rockaway Oyster Co	229	Jamaica bay	10.4	Mar. 9, 1910	Oct. 1, 1912	2 60
Rockaway Oyster Co	82	Jamaica bay	5.8	Mar. 9, 1910	Oct. 1, 1912	1 45

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Rockaway Oyster Co.	83	Jamaica bay	5.0	Mar. 9, 1910	Oct. 1, 1912	1	25
Rockaway Oyster Co.	36	Jamaica bay	4.0	June 2, 1910	Oct. 1, 1912	1	00
Benjamin Ryder	246	Jamaica bay	2.0	Oct. 12, 1897	Oct. 1, 1912		50
Benjamin Ryder	97	Jamaica bay	1.8	Oct. 26, 1906	Oct. 1, 1912		45
Benjamin Ryder	93	Jamaica bay	1.8	Oct. 26, 1909	Oct. 1, 1912		45
Benjamin Ryder	126	Jamaica bay	0.6	Oct. 26, 1909	Oct. 1, 1912		15
Grace L. Ryder	119	Jamaica bay	0.8	Oct. 28, 1909	Oct. 1, 1912		20
William R. Rhinehart	635	Jamaica bay	2.8	Nov. 4, 1909	Oct. 1, 1912		70
William R. Rhinehart	636	Jamaica bay	3.2	Nov. 4, 1909	Oct. 1, 1912		80
George Rhinehart	432	Jamaica bay	9.2	Mar. 22, 1910	Oct. 1, 1912	2	30
William M. Remsen	472	Jamaica bay	29.6	May 9, 1910	Oct. 1, 1912	7	40
Thomas Remsen	473	Jamaica bay	8.0	June 2, 1910	Oct. 1, 1912	2	00
Sealshipt Oyster System	542	Jamaica bay	2.8	July 20, 1908	Oct. 1, 1912		70
Sealshipt Oyster System	64	Jamaica bay	1.0	July 20, 1908	Oct. 1, 1912		25
Sealshipt Oyster System	209	Jamaica bay	12.6	Aug. 14, 1908	Oct. 1, 1912	3	15
Sealshipt Oyster System	68	Jamaica bay	2.0	July 20, 1908	Oct. 1, 1912		50
Sealshipt Oyster System	207	Jamaica bay	14.2	June 21, 1911	Oct. 1, 1912	3	55
Sealshipt Oyster System	327	Jamaica bay	11.6	June 21, 1911	Oct. 1, 1912	2	90
Sealshipt Oyster System	913	Jamaica bay	42.6	Oct. 11, 1912	Oct. 1, 1912	10	65
C. S. Sofield	522	Jamaica bay	25.6	Jan. 7, 1911	Oct. 1, 1912	6	40
C. S. Sofield	536	Jamaica bay	1.4	Jan. 7, 1911	Oct. 1, 1912		35
C. S. Sofield	556	Jamaica bay	15.2	Jan. 7, 1911	Oct. 1, 1912	3	80
C. S. Sofield	526	Jamaica bay	20.0	Jan. 7, 1911	Oct. 1, 1912	5	00
C. S. Sofield	523	Jamaica bay	1.4	Jan. 7, 1911	Oct. 1, 1912		35
C. S. Sofield	110	Jamaica bay	5.2	Jan. 7, 1911	Oct. 1, 1912	1	30
C. S. Sofield	171	Jamaica bay	2.4	Jan. 7, 1911	Oct. 1, 1912		60
C. S. Sofield	469	Jamaica bay	12.0	Jan. 7, 1911	Oct. 1, 1912	3	00
Julia Sofield	140	Jamaica bay	27.0	Jan. 9, 1911	Oct. 1, 1912	6	75
Julia Sofield	170	Jamaica bay	4.4	Jan. 9, 1911	Oct. 1, 1912	1	10
Ella Sofield	90	Jamaica bay	22.6	Jan. 9, 1911	Oct. 1, 1912	5	65
Ezra Sprague	375	Jamaica bay	1.2	Mar. 21, 1910	Oct. 1, 1912		30
Ezra Sprague	433A	Jamaica bay	1.6	Mar. 21, 1910	Oct. 1, 1912		40
Ezra Sprague	433B	Jamaica bay	1.6	Mar. 21, 1910	Oct. 1, 1912		40
Ezra Sprague	434	Jamaica bay	2.4	Mar. 21, 1910	Oct. 1, 1912		60
Valentine Smith	365	Jamaica bay	2.0	Mar. 21, 1910	Oct. 1, 1912		50
Valentine Smith	362	Jamaica bay	3.6	Mar. 21, 1910	Oct. 1, 1912		90
George S. Smith	397	Jamaica bay	0.8	Mar. 22, 1910	Oct. 1, 1912		20
J. Frank Smith	441	Jamaica bay	1.0	Mar. 22, 1910	Oct. 1, 1912		25
Samuel E. Smith	440	Jamaica bay	2.6	Mar. 22, 1910	Oct. 1, 1912		65
J. F. & S. E. Smith	385	Jamaica bay	3.0	Mar. 22, 1910	Oct. 1, 1912		75
Webb Sprague	425	Jamaica bay	3.0	Mar. 22, 1910	Oct. 1, 1912		75
Webb Sprague	422	Jamaica bay	2.8	Mar. 22, 1910	Oct. 1, 1912		70
Webb Sprague	426	Jamaica bay	3.0	Mar. 22, 1910	Oct. 1, 1912		75
H. W. Schmeelk Oyster Co.	317	Jamaica bay	13.2	Feb. 8, 1898	Oct. 1, 1912	3	30
H. W. Schmeelk Oyster Co.	573	Jamaica bay	11 0	Sept. 10, 1901	Oct. 1, 1912	2	75
H. W. Schmeelk Oyster Co.	581	Jamaica bay	5.6	Nov. 12, 1901	Oct. 1, 1912	1	40
H. W. Schmeelk Oyster Co.	580	Jamaica bay	11.4	Nov. 12, 1901	Oct. 1, 1912	2	85
H. W. Schmeelk Oyster Co.	577	Jamaica bay	3.8	Nov. 12, 1901	Oct. 1, 1912		95

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SCHEDULE "B" — (*Continued*)

NAME	Lot No.	Location	Acres	Lease granted	Surrendered to City of New York	Annual tax
H. W. Schmeelk Oyster Co	273	Jamaica bay	8.8	Mar. 10, 1910	Oct. 1, 1912	$2 20
H. W. Schmeelk Oyster Co	624	Jamaica bay	2.0	May 10, 1909	Oct. 1, 1912	50
H. W. Schmeelk Oyster Co	337	Jamaica bay	6.6	Mar. 14, 1910	Oct. 1, 1912	1 65
H. W. Schmeelk Oyster Co	225	Jamaica bay	5.2	Mar. 10, 1910	Oct. 1, 1912	1 30
H. W. Schmeelk Oyster Co	308	Jamaica bay	6.4	Jan. 4, 1909	Oct. 1, 1912	1 60
H. W. Schmeelk Oyster Co	76	Jamaica bay	1.8	Mar. 14, 1910	Oct. 1, 1912	45
H. W. Schmeelk Oyster Co	232	Jamaica bay	4.0	Mar. 10, 1910	Oct. 1, 1912	1 00
H. W. Schmeelk Oyster Co	209	Jamaica bay	0.4	Aug. 14, 1908	Oct. 1, 1912	10
H. W. Schmeelk Oyster Co	276	Jamaica bay	3.0	Mar. 10, 1910	Oct. 1, 1912	75
H. W. Schmeelk Oyster Co	192	Jamaica bay	1.2	Mar. 14, 1910	Oct. 1, 1912	30
H. W. Schmeelk Oyster Co	485	Jamaica bay	23.2	Mar. 10, 1910	Oct. 1, 1912	5 80
H. W. Schmeelk Oyster Co	142	Jamaica bay	5.0	Mar. 11, 1910	Oct. 1, 1912	1 25
H. W. Schmeelk Oyster Co	107	Jamaica bay	4.8	Mar. 14, 1910	Oct. 1, 1912	1 20
H. W. Schmeelk Oyster Co	36	Jamaica bay	5.4	Mar. 10, 1910	Oct. 1, 1912	1 35
H. W. Schmeelk Oyster Co	328	Jamaica bay	5.4	Mar. 10, 1910	Oct. 1, 1912	1 35
H. W. Schmeelk Oyster Co	351	Jamaica bay	8.0	Mar. 14, 1910	Oct. 1, 1912	2 00
H. W. Schmeelk Oyster Co	37	Jamaica bay	3.0	Mar. 10, 1910	Oct. 1, 1912	75
H. W. Schmeelk Oyster Co	130	Jamaica bay	2.4	Mar. 10, 1910	Oct. 1, 1912	60
H. W. Schmeelk Oyster Co	191	Jamaica bay	1.6	Mar. 14, 1910	Oct. 1, 1912	40
H. W. Schmeelk Oyster Co	39	Jamaica bay	4.8	Mar. 10, 1910	Oct. 1, 1912	1 20
H. W. Schmeelk Oyster Co	193	Jamaica bay	3.2	Mar. 10, 1910	Oct. 1, 1912	80
H. W. Schmeelk Oyster Co	532	Jamaica bay	14.0	Mar. 14, 1910	Oct. 1, 1912	3 50
H. W. Schmeelk Oyster Co	399	Jamaica bay	1.6	Mar. 14, 1910	Oct. 1, 1912	40
H. W. Schmeelk Oyster Co	172	Jamaica bay	27.2	Mar. 10, 1910	Oct. 1, 1912	6 80
H. W. Schmeelk Oyster Co	106	Jamaica bay	1.4	Mar. 14, 1910	Oct. 1, 1912	35
H. W. Schmeelk Oyster Co	62	Jamaica bay	5.2	Mar. 14, 1910	Oct. 1, 1912	1 30
H. W. Schmeelk Oyster Co	176	Jamaica bay	3.8	Mar. 14, 1910	Oct. 1, 1912	95
H. W. Schmeelk Oyster Co	38	Jamaica bay	3.4	Mar. 14, 1912	Oct. 1, 1912	85
H. W. Schmeelk Oyster Co	35	Jamaica bay	8.0	Mar. 14, 1910	Oct. 1, 1912	2 00
H. W. Schmeelk Oyster Co	174	Jamaica bay	5.0	Mar. 10, 1910	Oct. 1, 1912	1 25
H. W. Schmeelk Oyster Co	109	Jamaica bay	6.6	Mar. 14, 1910	Oct. 1, 1912	1 65
H. W. Schmeelk Oyster Co	486	Jamaica bay	2.8	Mar. 14, 1910	Oct. 1, 1912	70
H. W. Schmeelk Oyster Co	78	Jamaica bay	4.4	Mar. 14, 1910	Oct. 1, 1912	1 10
H. W. Schmeelk Oyster Co	141	Jamaica bay	6.0	Mar. 14, 1910	Oct. 1, 1912	1 50
H. W. Schmeelk Oyster Co	148	Jamaica bay	3.2	Mar. 14, 1910	Oct. 1, 1912	80
H. W. Schmeelk Oyster Co	493	Jamaica bay	2.8	Mar. 14, 1910	Oct. 1, 1912	70
H. W. Schmeelk Oyster Co	533	Jamaica bay	13.2	Mar. 14, 1910	Oct. 1, 1912	3 30
H. W. Schmeelk Oyster Co	145	Jamaica bay	5.2	Mar. 14, 1910	Oct. 1, 1912	1 30
H. W. Schmeelk Oyster Co	489	Jamaica bay	12.6	Mar. 14, 1910	Oct. 1, 1912	3 15

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H. W. Schmeelk Oyster Co.	58	Jamaica bay	2.4	Mar. 14, 1910	Oct.	1, 1912			60
H. W. Schmeelk Oyster Co.	220	Jamaica bay	4.2	Mar. 14, 1910	Oct.	1, 1912	1	05	
H. W. Schmeelk Oyster Co.	226	Jamaica bay	1.8	Mar. 14, 1910	Oct.	1, 1912			45
H. W. Schmeelk Oyster Co.	335	Jamaica bay	6.6	Mar. 14, 1910	Oct.	1, 1912	1	65	
H. W. Schmeelk Oyster Co.	623	Jamaica bay	5.0	May 10, 1909	Oct.	1, 1912	1	25	
H. W. Schmeelk Oyster Co.	147	Jamaica bay	12.6	Mar. 14, 1910	Oct.	1, 1912	3	15	
H. W. Schmeelk Oyster Co.	59	Jamaica bay	6.0	Dec. 14, 1908	Oct.	1, 1912	1	50	
H. W. Schmeelk Oyster Co.	75	Jamaica bay	4.0	June 13, 1910	Oct.	1, 1912	1	00	
H. W. Schmeelk Oyster Co.	74	Jamaica bay	3.2	June 13, 1910	Oct.	1, 1912			80
H. W. Schmeelk Oyster Co.	230	Jamaica bay	5.8	June 13, 1910	Oct.	1, 1912	1	45	
John H. Schmeelk, No. 1	305	Jamaica bay	4.4	April 12, 1898	Oct.	1, 1912	1	10	
John H. Schmeelk, No. 1	45	Jamaica bay	3.6	June 13, 1910	Oct.	1, 1912			90
John H. Schmeelk, No. 1	49	Jamaica bay	7.0	June 13, 1910	Oct.	1, 1912	1	75	
John H. Schmeelk, No. 2	312	Jamaica bay	9.8	Mar. 8, 1898	Oct.	1, 1912	2	45	
John H. Schmeelk, No. 2	11	Jamaica bay	3.6	Aug. 22, 1909	Oct.	1, 1912			90
John H. Schmeelk, No. 2	21	Jamaica bay	3.8	Aug. 23, 1909	Oct.	1, 1912			95
John H. Schmeelk, No. 2	632	Jamaica bay	0.8	Oct. 20, 1909	Oct.	1, 1912			20
John H. Schmeelk, No. 3	313	Jamaica bay	9.0	Mar. 8, 1898	Oct.	1, 1912	2	25	
John H. Schmeelk, No. 3	314	Jamaica bay	2.8	Feb. 8, 1898	Oct.	1, 1912			70
John H. Schmeelk, No. 3	14	Jamaica bay	4.0	June 16, 1908	Oct.	1, 1912	1	00	
John H. Schmeelk, No. 3	13	Jamaica bay	3.0	June 16, 1908	Oct.	1, 1912			75
John H. Schmeelk, No. 3	18	Jamaica bay	4.2	June 16, 1908	Oct.	1, 1912	1	05	
Richard H. Smith	371	Jamaica bay	6.2	July 18, 1898	Oct.	1, 1912	1	55	
Richard H. Smith	400	Jamaica bay	10.0	July 18, 1898	Oct.	1, 1912	2	50	
George T. Soper	413	Jamaica bay	7.2	April 4, 1910	Oct.	1, 1912	1	80	
George T. Soper	614	Jamaica bay	12.4	April 4, 1910	Oct.	1, 1912	3	10	
George T. Soper	420	Jamaica bay	6.4	April 4, 1910	Oct.	1, 1912	1	60	
George T. Soper	611	Jamaica bay	4.8	April 4, 1910	Oct.	1, 1912	1	20	
George T. Soper	437	Jamaica bay	5.8	April 4, 1910	Oct.	1, 1912	1	45	
Sofield & Frazer	154	Jamaica bay	1.6	Jan. 9, 1911	Oct.	1, 1912			40
Sofield & Frazer	156	Jamaica bay	0.8	Jan. 9, 1911	Oct.	1, 1912			20
Sofield & Frazer	169	Jamaica bay	3.2	Jan. 9, 1911	Oct.	1, 1912			80
Sofield & Frazer	168	Jamaica bay	3.2	Jan. 9, 1911	Oct.	1, 1912			80
Ezra & Theodore Sprague	454	Jamaica bay	9.0	Oct. 11, 1898	Oct.	1, 1912	2	25	
Ezra & Theodore Sprague	451	Jamaica bay	5.2	Mar. 21, 1910	Oct.	1, 1912	1	30	
Ezra & Theodore Sprague	450	Jamaica bay	5.8	Mar. 21, 1910	Oct.	1, 1912	1	45	
Ezra & Theodore Sprague	366	Jamaica bay	1.2	Mar. 21, 1910	Oct.	1, 1912			30
Sprague & Doughty	444	Jamaica bay	1.7	Mar. 21, 1910	Oct.	1, 1912			43
Sprague & Doughty	381	Jamaica bay	3.4	Mar. 21, 1910	Oct.	1, 1912			85
Sprague & Doughty	447	Jamaica bay	3.2	Mar. 21, 1910	Oct.	1, 1912			80
Sprague & Doughty	382	Jamaica bay	2.4	Mar. 21, 1910	Oct.	1, 1912			60
Sprague & Doughty	387	Jamaica bay	13.8	Mar. 21, 1910	Oct.	1, 1912	3	45	
Sprague & Doughty	418	Jamaica bay	3.0	Mar. 21, 1910	Oct.	1, 1912			75
Sprague & Doughty	442	Jamaica bay	5.2	Mar. 21, 1910	Oct.	1, 1912	1	30	
Sprague & Doughty	380	Jamaica bay	0.8	Mar. 21, 1910	Oct.	1, 1912			20
Sprague & Doughty	379	Jamaica bay	1.8	Mar. 21, 1910	Oct.	1, 1912			45
Smith Sprague	394	Jamaica bay	1.8	Mar. 21, 1910	Oct.	1, 1912			45
Smith Sprague	390	Jamaica bay	4.0	Mar. 21, 1910	Oct.	1, 1912	1	00	

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SCHEDULE "B" — (*Concluded*)

NAME	Lot No.	Location	Acres	Lease granted	Surrendered to City of New York	Annual tax
Smith Sprague	570	Jamaica bay	5.0	Mar. 21, 1910	Oct. 1, 1912	$1 25
Smith Sprague	417	Jamaica bay	1.6	Mar. 21, 1910	Oct. 1, 1912	40
Smith Sprague	416	Jamaica bay	2.2	Mar. 21, 1910	Oct. 1, 1912	55
Smith Sprague	393	Jamaica bay	1.6	Mar. 21, 1910	Oct. 1, 1912	40
Smith Sprague	438	Jamaica bay	3.0	Mar. 21, 1910	Oct. 1, 1912	75
Smith Sprague	388	Jamaica bay	3.6	Mar. 21, 1910	Oct. 1, 1912	90
Theodore Sprague	429	Jamaica bay	7.2	Mar. 21, 1910	Oct. 1, 1912	1 80
Theodore Sprague	396	Jamaica bay	1.4	Mar. 21, 1910	Oct. 1, 1912	35
Herman M. Schmeelk	411	Jamaica bay	29.8	July 18, 1898	Oct. 1, 1912	7 45
Herman M. Schmeelk	412	Jamaica bay	13.8	July 18, 1898	Oct. 1, 1912	3 45
Herman M. Schmeelk	468	Jamaica bay	5.4	Oct. 11, 1898	Oct. 1, 1912	1 35
Herman M. Schmeelk	509	Jamaica bay	80.8	May 9, 1899	Oct. 1, 1912	20 20
Herman M. Schmeelk	541	Jamaica bay	26.8	Oct. 9, 1900	Oct. 1, 1912	6 70
W. Elsworth Sprague	374	Jamaica bay	14.6	July 18, 1898	Oct. 1, 1912	3 65
W. Elsworth Sprague	405	Jamaica bay	9.2	Aug. 15, 1898	Oct. 1, 1912	2 30
W. Elsworth Sprague	406	Jamaica bay	7.2	Aug. 15, 1898	Oct. 1, 1912	1 80
W. Elsworth Sprague	470	Jamaica bay	33.2	Aug. 15, 1898	Oct. 1, 1912	8 30
W. Elsworth Sprague	373	Jamaica bay	4.4	July 18, 1898	Oct. 1, 1912	1 10
William F. Schmeelk	30	Jamaica bay	2.4	May 10, 1911	Oct. 1, 1912	60
Erastus W. Seaman	278	Jamaica bay	15.2	Nov. 9, 1897	Oct. 1, 1912	3 80
Hannah M. Starkey	462	Jamaica bay	2.2	July 18, 1898	Oct. 1, 1912	55
William R. Schenck	501	Jamaica bay	25.8	Oct. 10, 1899	Oct. 1, 1912	6 45
William M. Schmeelk	15	Jamaica bay	3.2	Jan. 4, 1909	Oct. 1, 1912	80
William M. Schmeelk	316	Jamaica bay	8.8	Jan. 4, 1909	Oct. 1, 1912	2 20
Henry Schlatenberg	238	Jamaica bay	4.0	Nov. 10, 1909	Oct. 1, 1912	1 00
W. T. Schmeelk	98	Jamaica bay	9.2	May 3, 1910	Oct. 1, 1912	2 30
George A. Schmeelk	210	Jamaica bay	10.8	Mar. 14, 1910	Oct. 1, 1912	2 70
George A. Schmeelk	281	Jamaica bay	2.2	Mar. 14, 1910	Oct. 1, 1912	55
George A. Schmeelk	103	Jamaica bay	2.2	Mar. 24, 1910	Oct. 1, 1912	55
Henry L. Schmeelk	318	Jamaica bay	5.0	Dec. 14, 1897	Oct. 1, 1912	1 25
W. H. Sellars	596	Jamaica bay	7.2	May 13, 1902	Oct. 1, 1912	1 80
M. H. Sickman	599	Jamaica bay	7.2	Jan. 14, 1902	Oct. 1, 1912	1 80
Richard Van Houghten	525	Jamaica bay	14.8	Sept. 11, 1900	Oct. 1, 1912	3 70
J. H. & J. H. Vreeland, Jr.	521	Jamaica bay	5.0	April 11, 1900	Oct. 1, 1912	1 25
J. H. & J. H. Vreeland, Jr.	607	Jamaica bay	10.0	June 10, 1902	Oct. 1, 1912	2 50
J. H. & J. H. Vreeland, Jr.	185	Jamaica bay	12.0	June 22, 1908	Oct. 1, 1912	3 00
J. H. & J. H. Vreeland, Jr.	633	Jamaica bay	5.8	Oct. 20, 1909	Oct. 1, 1912	1 45
Henry Von Twistern	555	Jamaica bay	1.2	Dec. 14, 1897	Oct. 1, 1912	30
Henry Von Twistern	12	Jamaica bay	2.4	Oct. 18, 1909	Oct. 1, 1912	60

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P. William Von Ahnen	319	Jamaica bay	9.6	Dec. 14, 1897	Oct. 1, 1912	2	40
P. William Von Ahnen	500	Jamaica bay	2.4	Oct. 10, 1899	Oct. 1, 1912		60
P. William Von Ahnen	204	Jamaica bay	1.0	Sept. 21, 1908	Oct. 1, 1912		25
P. William Von Ahnen	32	Jamaica bay	10.6	Sept. 21, 1908	Oct. 1, 1912	2	65
P. William Von Ahnen	205	Jamaica bay	8.2	Sept. 21, 1908	Oct. 1, 1912	2	05
Annie Von Ahnen	40	Jamaica bay	4.8	Sept. 11, 1908	Oct. 1, 1912	1	20
Estate of H. Von Ahnen	41	Jamaica bay	6.4	Sept. 11, 1908	Oct. 1, 1912	1	60
Estate of H. Von Ahnen	304	Jamaica bay	11.4	April 5, 1911	Oct. 1, 1912	2	85
Estate of H. Von Ahnen	519	Jamaica bay	2.6	April 5, 1911	Oct. 1, 1912		65
Estate of H. Von Ahnen	64	Jamaica bay	3.0	April 5, 1911	Oct. 1, 1912		75
Estate of H. Von Ahnen	73	Jamaica bay	4.0	April 5, 1911	Oct. 1, 1912	1	00
William R. Wilson	518	Jamaica bay	12.8	July 11, 1899	Oct. 1, 1912	3	20
William R. Wilson	520	Jamaica bay	36.0	July 11, 1899	Oct. 1, 1912	9	00
Wofield & Meereau	100	Jamaica bay	2.0	May 25, 1909	Oct. 1, 1912		50
Wofield & Meereau	582	Jamaica bay	3.6	May 25, 1909	Oct. 1, 1912		90
Wofield & Meereau	101	Jamaica bay	2.3	May 25, 1909	Oct. 1, 1912		70
Wofield & Meereau	195	Jamaica bay	2.0	May 25, 1900	Oct. 1, 1912		50
Wofield & Meereau	295	Jamaica bay	2.8	May 25, 1909	Oct. 1, 1912		70
Wofield & Meereau	102	Jamaica bay	1.4	May 25, 1909	Oct. 1, 1912		35
Edward Webber	183	Jamaica bay	3.2	Aug. 31, 1908	Oct. 1, 1912		80
Edward Webber	44	Jamaica bay	2.0	Aug. 31, 1908	Oct. 1, 1912		50
Edward Webber	10	Jamaica bay	4.4	Aug. 31, 1908	Oct. 1, 1912	1	10
Edward Webber	47	Jamaica bay	5.8	Aug. 31, 1908	Oct. 1, 1912	1	45
Henry Warren	544	Jamaica bay	9.4	Nov. 13, 1900	Oct. 1, 1912	2	35
H. L. C. Wenk	567	Jamaica bay	9.6	June 11, 1901	Oct. 1, 1912	2	40
H. L. C. Wenk	568	Jamaica bay	10.0	June 11, 1901	Oct. 1, 1912	2	50
H. L. C. Wenk	569	Jamaica bay	3.2	June 11, 1901	Oct. 1, 1912		80
W. A. Winant	266	Jamaica bay	6.4	Nov. 27, 1909	Oct. 1, 1912	1	60
John Whittaker	231	Jamaica bay	4.4	Mar. 9, 1910	Oct. 1, 1912	1	10
J. E. Watts	460	Jamaica bay	5.2	April 8, 1910	Oct. 1, 1912	1	30
Elisabeth Watts	456	Jamaica bay	6.8	April 8, 1910	Oct. 1, 1912	1	70
William H. Watts	427	Jamaica bay	2.2	Jan. 27, 1911	Oct. 1, 1912		55
William H. Watts	445	Jamaica bay	2.8	Jan. 27, 1911	Oct. 1, 1912		70
Total			2,610.45			$652	61

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SCHEDULE "C"

NAME	Lot	Location	Acres	Franchise granted	Annual tax
N. S. Ackerly & Son Co	85	Long Island sound	51.2	Mar. 27, 1900	$12 80
N. S. Ackerly & Son Co	87	Long Island sound	60.6	Mar. 27, 1900	15 15
N. S. Ackerly & Son Co	86	Long Island sound	109.2	Mar. 27, 1900	27 30
N. S. Ackerly & Son Co	Several	Long Island sound	16.2	April 18, 1900	4 05
N. S. Ackerly & Son Co	Several	Long Island sound	88.9	Sept. 4, 1888	22 23
N. S. Ackerly & Son Co	Several	Long Island sound	30.0	Dec. 11, 1888	7 50
N. S. Ackerly & Son Co	Several	Long Island sound	30.0	Mar. 18, 1891	7 50
N. S. Ackerly & Son Co	Several	Long Island sound	40.0	Jan. 27, 1891	10 00
N. S Ackerly & Son Co	Several	Long Island sound	40.0	Dec. 11, 1888	10 00
N. S. Ackerly & Son Co	16-L	Long Island sound	21.0	Nov. 7, 1888	5 25
N. S. Ackerly & Son Co	480	Raritan bay	4.6	Feb. 11, 1890	1 15
N. S. Ackerly	Section C	Smithtown bay	46.8	Feb. 10, 1891	11 70
N. S. Ackerly	Several	Long Island sound	130.0	Mar. 18, 1891	32 50
N. S. Ackerly	14-L	Long Island sound	172.2	July 6, 1888	43 05
N. S. Ackerly	Several	Long Island sound	60.0	Jan. 12, 1889	15 00
H. D. Ackerly	16-L	Long Island sound	56.0	Nov. 7, 1888	14 00
H. D. Ackerly	17-L	Long Island sound	193.6	Nov. 7, 1888	48 40
Androvette & Thompson	392	Raritan bay	11.0	July 9, 1899	2 75
Androvette & Thompson	148	Raritan bay	3.6	Aug. 13, 1889	90
Androvette & Thompson	339	Raritan bay	8.3	Jan. 14, 1890	2 07
Androvette & Thompson	337	Raritan bay	4.0	Jan. 14, 1890	1 00
Androvette & Thompson	568	Raritan bay	2.1	Feb. 11, 1890	53
Androvette & Thompson	236	Raritan bay	31.9	Oct. 14, 1890	7 98
Androvette & Thompson	789	Raritan bay	10.2	July 14, 1891	2 55
Androvette & Thompson	807	Raritan bay	2.6	July 14, 1891	65
Androvette & Thompson	570	Raritan bay	2.6	Mar. 11, 1890	65
Herbert Androvette	178	Raritan bay	2.4	May 14, 1889	60
A. W. Androvette	449	Raritan bay	2.4	Mar. 11, 1890	60
Andrew Anderson	424	Raritan bay	2.8	Mar. 11, 1890	70
Elmer T. Butler	78	Raritan bay	27.2	April 2, 1888	6 80
Elmer T. Butler	31	Raritan bay	0.6	Nov. 7, 1888	15
Elmer T. Butler	392	Raritan bay	20.5	July 9, 1889	5 13
Elmer T. Butler	553	Raritan bay	2.3	Feb. 11, 1890	57
Elmer T. Butler	388	Raritan bay	2.4	Mar. 11, 1890	60
Elmer T. Butler	283	Raritan bay	2.2	Mar. 11, 1890	55
Elmer T. Butler	871	Raritan bay	2.6	Feb. 14, 1893	65
Elmer T. Butler	839	Raritan bay	4.2	Feb. 14, 1893	1 05
Bedell & Lang	114	Raritan bay	10.5	May 14, 1889	2 63
Lyman W. Bedell	115	Raritan bay	8.4	Feb. 6, 1888	2 10

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Lyman W. Bedell	204	Raritan bay	11.5	May 14, 1888	2	88
Lyman W. Bedell	221	Raritan bay	4.8	May 14, 1889	1	20
Lyman W. Bedell	206	Raritan bay	4.8	May 14, 1889	1	20
Lyman W. Bedell	223	Raritan bay	3.6	May 14, 1889		90
Charles Bogardus	655	Raritan bay	7.4	Mar. 11, 1890	1	85
John M. Benner	8	Long Island sound	75.3	Oct. 1, 1888	18	83
John M. Benner	50	Long Island sound	8.8	Nov. 7, 1888	2	20
John M. Benner	46	Long Island sound	8.8	Nov. 7, 1888	2	20
John M. Benner	45	Long Island sound	8.8	Nov. 7, 1888	2	20
John M. Benner	44	Long Island sound	8.8	Nov. 7, 1888	2	20
John M. Benner	47	Long Island sound	8.8	Nov. 7, 1888	2	20
John M. Benner	51	Long Island sound	8.8	Nov. 7, 1888	2	20
John M. Benner	49	Long Island sound	8.8	Nov. 7, 1888	2	20
John M. Benner	43	Long Island sound	8.8	Nov. 7, 1888	2	20
John M. Benner	48	Long Island sound	8.8	Nov. 7, 1888	2	20
John M. Benner	2	Long Island sound	67.2	Jan. 8, 1889	16	80
John M. Benner	67	Long Island sound	12.3	July 9, 1889	3	07
John M. Benner	68	Long Island sound	28.2	May 14, 1889	7	05
John M. Benner	55	Long Island sound	14.0	May 14, 1889	3	50
John M. Benner	238	Raritan bay	15.0	Aug. 12, 1890	3	75
Lyman W. Bedell	219	Raritan bay	3.0	Mar. 11, 1890		75
Lyman W. Bedell	213	Raritan bay	1.6	Mar. 11, 1890		40
Lyman W. Bedell	225	Raritan bay	1.6	Mar. 11, 1890		40
Chas. Bedell	183	Raritan bay	2.0	Mar. 11, 1890		50
Chas. Bedell	821	Raritan bay	1.8	Aug. 7, 1891		45
Chas. Bedell	820	Raritan bay	3.2	Aug. 7, 1891		80
Chas. Bedell	767	Raritan bay	3.3	Aug. 7, 1891		83
Chas. Bedell	770	Raritan bay	1.4	Jan. 12, 1892		35
Jos. M. Belford	Several	Long Island sound	70.0	Jan. 12, 1892	17	50
Jos. M. Belford	Several	Long Island sound	60.0	Mar. 18, 1891	15	00
Jos. M. Belford	Several	Long Island sound	120.0	Mar. 18, 1891	30	00
Wm. P. Burbank	509	Raritan bay	3.9	Feb. 11, 1890		98
W. D. Bush	11	Raritan bay	2.5	Nov. 7, 1888		63
W. D. Bush	457	Raritan bay	3.7	Jan. 14, 1890		92
B. F. & H. E. Bush	456	Raritan bay	1.6	Jan. 14, 1890		40
B. F. & H. E. Bush	468	Raritan bay	5.3	Jan. 14, 1890	1	33
B. F. & H. E. Bush	467	Raritan bay	4.15	Jan. 14, 1890	1	04
B. F. & H. E. Bush	481	Raritan bay	47.0	Jan. 14, 1890	11	75
B. F. & H. E. Bush	861	Raritan bay	25.2	Mar. 12, 1891	6	30
Daniel Burbank	288	Raritan bay	15.4	May 14, 1889	3	85
Daniel Burbank	380	Raritan bay	12.0	Nov. 12, 1889	3	00
Daniel Burbank	386	Raritan bay	5.3	May 12, 1889	1	33
Daniel Burbank	696	Raritan bay	19.9	Mar. 12, 1891	4	97
Daniel Burbank	862	Raritan bay	24.6	Aug. 9, 1892	6	15
Daniel Burbank	382	Raritan bay	16.8	Mar. 11, 1890	4	20
Adeline Bedell	185	Raritan bay	1.2	May 14, 1889		30
Wm. Buchanan	42	Raritan bay	4.7	Nov. 7, 1888	1	18
Wm. Buchanan	690	Raritan bay	2.5	Mar. 12, 1891		63

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SCHEDULE "C" — (*Continued*)

NAME	Lot	Location	Acres	Franchise granted	Annual tax
Geo. S. Burbank	858	Raritan bay	12.0	June 8, 1892	$3 00
Roscoe Bishop	9-L	Long Island sound	38.7	Nov. 7, 1888	9 67
O. & M. G. Bartow	10-L	Long Island sound	17.5	Nov. 7, 1888	4 38
F. T. Boerum	27	Little Neck bay	2.5	Jan. 8, 1889	63
Jacob Bumstead	63-L	Long Island sound	18.0	July 9, 1889	4 50
Peter Cannon	733	Raritan bay	0.2	May 12, 1891	05
Alfred Cannon	454	Raritan bay	0.8	May 6, 1890	20
Thomas Colon	448	Raritan bay	0.9	Feb. 11, 1890	20
David B. Colon	418½	Raritan bay	1.7	July 14, 1891	43
Wm. Cooley	277	Raritan bay	5.3	Mar. 11, 1890	1 33
Andrew M. Cannon	45	Raritan bay	0.7	Mar. 5, 1888	18
Andrew M. Cannon	735	Raritan bay	2.2	May 12, 1891	55
J. W. Cole	469	Raritan bay	1.1	Jan. 14, 1890	28
J. W. Cole	507	Raritan bay	4.9	Feb. 11, 1890	1 22
F. K. Conant	Several	Little Neck bay	7.5	Feb. 12, 1889	1 88
F. K. Conant	Several	Little Neck bay	5.0	Jan. 8, 1889	1 25
Jas. Cochrane	13	Long Island sound	61.2	Nov. 7, 1888	15 30
Benj. W. Carll	Several	Long Island sound	90.0	Jan. 12, 1889	22 50
Benj. W. Carll	Several	Long Island sound	120.0	Mar. 18, 1881	30 00
Geo. E. Call	41-L	Long Island sound	74.9	Nov. 7, 1888	18 73
Geo. W. Chauncey	Several	Long Island sound	100.0	Sept. 6, 1899	25 00
C. V. Decker	50	Raritan bay	1.2	Mar. 5, 1888	30
C. V. Decker	444	Raritan bay	6.3	Feb. 11, 1890	1 58
C. V. Decker	851	Raritan bay	7.8	Feb. 11, 1892	1 95
C. V. Decker	853	Raritan bay	7.2	Feb. 11, 1892	1 80
C. V. Decker	870	Raritan bay	3.6	Feb. 14, 1893	90
C. V. Decker	876	Raritan bay	38.4	Feb. 14, 1893	9 60
C. C. & C. M. Decker	25	Raritan bay	0.9	April 2, 1888	23
C. C. & C. M. Decker	666	Raritan bay	1.4	May 6, 1890	35
C. C. & C. M. Decker	670	Raritan bay	4.7	May 6, 1890	1 18
Fletcher Decker	127	Raritan bay	2.5	April 2, 1888	63
Fletcher Decker	128-B	Raritan bay	2.8	Mar. 11, 1890	70
Henry De Hart	1	Raritan bay	7.8	June 4, 1888	1 95
Henry De Hart	429	Raritan bay	30.8	May 14, 1889	9 70
Henry De Hart	427	Raritan bay	16.0	May 14, 1889	4 00
Henry De Hart	419	Raritan bay	16.1	May 6, 1890	4 03
Henry De Hart	421	Raritan bay	7.1	May 6, 1890	1 77
Henry De Hart	866	Raritan bay	12.6	Dec. 29, 1892	3 15
Sherman Decker	22	Raritan bay	0.5	April 2, 1888	13

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Sherman Decker	116	Raritan bay	1.55	Mar. 11, 1890			39
Sherman Decker	465	Raritan bay	5.1	Feb. 11, 1890		1	28
Sherman Decker	466	Raritan bay	4.0	Feb. 11, 1890		1	00
Sherman Decker	668	Raritan bay	4.4	May 6, 1890		1	10
Sherman Decker	681	Raritan bay	3.3	June 10, 1890			83
Sherman Decker	687	Raritan bay	6.0	Mar. 13, 1891	1		50
Sherman Decker	778	Raritan bay	3.5	July 14, 1891			88
Sherman Decker	780	Raritan bay	10.1	July 14, 1891	2		52
Alfred Du Bois	72	Raritan bay	2.9	Feb. 6, 1888			73
Alfred Du Bois	415	Raritan bay	2.3	Mar. 11, 1890			58
R. C. Du Bois	71	Raritan bay	6.2	Mar. 5, 1888	1		55
T. F. & S. De Hart	10	Raritan bay	0.9	Feb. 6, 1888			23
T. F. & S. De Hart	17	Raritan bay	0.9	June 13, 1888			23
T. F. & S. De Hart	14	Raritan bay	1.5	Feb. 6, 1888			37
T. F. & S. De Hart	149	Raritan bay	8.0	Mar. 11, 1890		2	00
T. F. & S. De Hart	145	Raritan bay	14.6	Mar. 11, 1890		3	65
Oscar L. Decker	37	Raritan bay	1.7	April 2, 1888			43
Almar Decker	52	Raritan bay	0.8	Mar. 5, 1888			20
Almar Decker	18	Raritan bay	0.5	Mar. 5, 1888			13
Almar Decker	724	Raritan bay	3.2	Feb. 10, 1891			80
Almar Decker	725	Raritan bay	3.8	May 12, 1891			95
David Decker	686	Raritan bay	6.6	Mar. 12, 1891	1		65
De Hart & Houseman	335	Raritan bay	1.3	Mar. 11, 1890			33
C. M. Decker	734	Raritan bay	1.5	April 12, 1892			37
J. & J. W. Elsworth Co.	623	Raritan bay	3.9	Mar. 11, 1890			97
J. & J. W. Elsworth Co.	621	Raritan bay	4.2	Mar. 11, 1890	1		05
J. & J. W. Elsworth Co.	299	Raritan bay	3.8	May 14, 1889			95
J. & J. W. Elsworth Co.	617	Raritan bay	11.7	Mar. 11, 1890	2		92
J. & J. W. Elsworth Co.	645	Raritan bay	5.8	Feb. 11, 1890	1		45
J. & J. W. Elsworth Co.	632	Raritan bay	24.7	Mar. 11, 1890	6		17
J. & J. W. Elsworth Co.	619	Raritan bay	11.8	Feb. 11, 1890	2		95
J. & J. W. Elsworth Co.	497	Raritan bay	3.4	Oct. 14, 1890			85
J. & J. W. Elsworth Co.	495	Raritan bay	12.9	Oct. 14, 1890	3		23
J. & J. W. Elsworth Co.	496	Raritan bay	6.1	Oct. 14, 1890	1		53
J. & J. W. Elsworth Co.	443	Raritan bay	4.4	May 6, 1890	1		10
J. & J. W. Elsworth Co.	440	Raritan bay	10.0	May 14, 1889	2		50
J. & J. W. Elsworth Co.	148	Raritan bay	67.9	Aug. 13, 1889	16		97
J. & J. W. Elsworth Co.	107	Raritan bay	10.0	Aug. 12, 1890	2		50
J. & J. W. Elsworth Co.	701	Raritan bay	6.7	Mar. 12, 1891	1		67
J. & J. W. Elsworth Co.	665	Raritan bay	4.9	Mar. 11, 1890	1		23
J. & J. W. Elsworth Co.	742	Raritan bay	1.5	June 17, 1891			38
J. & J. W. Elsworth Co.	855	Raritan bay	17.7	Feb. 11, 1892	4		42
J. & J. W. Elsworth Co.	648	Raritan bay	5.6	May 12, 1891	1		40
J. & J. W. Elsworth Co.	650	Raritan bay	11.9	Mar. 11, 1890	2		98
J. & J. W. Elsworth Co.	124	Raritan bay	1.8	Mar. 5, 1888			45
J. & J. W. Elsworth Co.	432	Raritan bay	3.4	Jan. 13, 1891			85
J. & J. W. Elsworth Co.	360	Raritan bay	6.5	Mar. 11, 1890	1		63
J. & J. W. Elsworth Co.	362	Raritan bay	1.1	Mar. 11, 1890			28

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SCHEDULE "C" — (*Continued*)

NAME	Lot	Location	Acres	Franchise granted	Annual tax
J. & J. W. Elsworth Co	786	Raritan bay	1.8	July 14, 1895	45
J. & J. W. Elsworth Co	305	Raritan bay	1.2	May 14, 1889	30
J. & J. W. Elsworth Co	680	Raritan bay	1.3	June 10, 1890	33
J. & J. W. Elsworth Co	501	Raritan bay	8.6	Feb. 11, 1890	2 15
J. & J. W. Elsworth Co	758	Raritan bay	3.1	July 14, 1891	78
J. & J. W. Elsworth Co	809	Raritan bay	1.4	July 14, 1891	35
J. & J. W. Elsworth Co	810	Raritan bay	1.4	July 14, 1891	35
J. & J. W. Elsworth Co	202	Raritan bay	4.6	May 14, 1889	1 15
J. & J. W. Elsworth Co	367	Raritan bay	4.3	May 14, 1889	1 07
J. & J. W. Elsworth Co	505	Raritan bay	6.1	Sept. 30, 1892	1 52
J. & J. W. Elsworth Co	172	Raritan bay	10.0	Mar. 11, 1890	2 50
J. & J. W. Elsworth Co	487	Raritan bay	21.2	Mar. 11, 1890	5 30
J. & J. W. Elsworth Co	692	Raritan bay	17.0	Jan. 12, 1892	4 25
J. & J. W. Elsworth Co	87	Raritan bay	2.7	Feb. 6, 1888	68
J. & J. W. Elsworth Co	785	Raritan bay	37.8	July 14, 1891	9 45
J. & J. W. Elsworth Co	556	Raritan bay	2.0	Feb. 11, 1890	50
J. & J. W. Elsworth Co	234	Raritan bay	2.0	May 14, 1889	50
J. & J. W. Elsworth Co	602	Raritan bay	1.7	Mar. 11, 1890	43
J. & J. W. Elsworth Co	631	Raritan bay	1.5	Feb. 11, 1890	38
J. & J. W. Elsworth Co	208	Raritan bay	1.6	Mar. 11, 1890	40
J. & J. W. Elsworth Co	625	Raritan bay	2.6	Feb. 11, 1890	65
J. & J. W. Elsworth Co	623	Raritan bay	2.0	Feb. 11, 1890	50
J. & J. W. Elsworth Co	269	Raritan bay	3.4	Nov. 12, 1889	85
J. & J. W. Elsworth Co	629	Raritan bay	1.4	Feb. 11, 1890	35
J. & J. W. Elsworth Co	273	Raritan bay	2.8	May 14, 1889	70
J. & J. W. Elsworth Co	618	Raritan bay	1.7	Mar. 11, 1890	42
J. & J. W. Elsworth Co	346	Raritan bay	11.7	June 10, 1889	2 93
J. & J. W. Elsworth Co	557	Raritan bay	13.4	Mar. 11, 1890	1 35
J. & J. W. Elsworth Co	534	Raritan bay	3.1	Feb. 11, 1890	78
J. & J. W. Elsworth Co	182	Raritan bay	2.4	May 14, 1889	60
J. & J. W. Elsworth Co	532	Raritan bay	2.15	Feb. 11, 1890	54
J. & J. W. Elsworth Co	184	Raritan bay	2.8	May 14, 1889	70
J. & J. W. Elsworth Co	634	Raritan bay	2.5	Mar. 11, 1890	63
J. & J. W. Elsworth Co	636	Raritan bay	6.8	Mar. 11, 1890	1 70
J. & J. W. Elsworth Co	638	Raritan bay	5.3	Mar. 11, 1890	1 32
J. & J. W. Elsworth Co	165	Raritan bay	28.2	May 14, 1889	7 05
J. & J. W. Elsworth Co	194	Raritan bay	6.0	Mar. 11, 1890	1 50
J. & J. W. Elsworth Co	630	Raritan bay	1.7	Mar. 11, 1890	43
J. & J. W. Elsworth Co	365	Raritan bay	7.7	Jan. 14, 1890	1 92

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J. & J. W. Elsworth Co.	273	Raritan bay	4.6	May 14, 1889			1	15
J. & J. W. Elsworth Co.	363	Raritan bay	8.0	May 14, 1889			2	00
J. & J. W. Elsworth Co.	371	Raritan bay	5.1	May 14, 1889			1	27
J. & J. W. Elsworth Co.	369	Raritan bay	14.6	May 14, 1889			3	65
J. & J. W. Elsworth Co.	831	Raritan bay	3.2	Aug. 7, 1891				80
J. & J. W. Elsworth Co.	264	Raritan bay	11.1	Mar. 11, 1890			2	78
J. & J. W. Elsworth Co.	721	Raritan bay	7.6	Feb. 10, 1891			1	90
J. & J. W. Elsworth Co.	557	Raritan bay	13.9	Mar. 11, 1890			3	47
J. & J. W. Elsworth Co.	555	Raritan bay	9.2	Feb. 11, 1890			2	30
J. & J. W. Elsworth Co.	637	Raritan bay	1.7	Feb. 11, 1890				43
J. & J. W. Elsworth Co.	842	Raritan bay	8.2	Feb. 11, 1892			2	05
J. & J. W. Elsworth Co.	166	Raritan bay	5.9	Feb. 14, 1893			1	48
J. & J. W. Elsworth Co.	249	Raritan bay	5.0	May 14, 1889			1	25
J. & J. W. Elsworth Co.	301	Raritan bay	3.6	May 14, 1889				90
J. & J. W. Elsworth Co.	307	Raritan bay	5.6	Feb. 11, 1890			1	40
J. & J. W. Elsworth Co.	788	Raritan bay	1.8	May 14, 1891				45
J. & J. W. Elsworth Co.	105	Raritan bay	5.0	Jan. 4, 1888			1	25
J. & J. W. Elsworth Co.	313	Raritan bay	14.1	May 6, 1890			3	52
J. & J. W. Elsworth Co.	283	Raritan bay	2.8	May 14, 1889				70
J. & J. W. Elsworth Co.	26	Raritan bay	1.0	Nov. 7, 1888				25
J. & J. W. Elsworth Co.	142-A	Raritan bay	22.1	May 6, 1890			5	52
J. & J. W. Elsworth Co.	132	Raritan bay	12.6	Feb. 6, 1888			3	15
J. & J. W. Elsworth Co.	303	Raritan bay	2.2	Mar. 11, 1890				55
J. & J. W. Elsworth Co.	393	Raritan bay	3.4	Mar. 11, 1890				85
J. & J. W. Elsworth Co.	782	Raritan bay	1.8	July 14, 1891				45
J. & J. W. Elsworth Co.	173	Raritan bay	76.0	Dec. 29, 1892			19	00
J. & J. W. Elsworth Co.	517	Raritan bay	2.6	Feb. 11, 1890				65
J. & J. W. Elsworth Co.	615	Raritan bay	14.9	Mar. 11, 1890			3	73
J. & J. W. Elsworth Co.	811	Raritan bay	4.8	July 14, 1891			1	20
J. & J. W. Elsworth Co.	439	Raritan bay	4.0	May 14, 1889			1	00
J. & J. W. Elsworth Co.	554	Raritan bay	6.1	Feb. 11, 1890			1	52
J. & J. W. Elsworth Co.	215	Raritan bay	12.7	Mar. 11, 1890			3	19
J. & J. W. Elsworth Co.	775	Raritan bay	2.4	July 14, 1891				60
J. & J. W. Elsworth Co.	81	Raritan bay	1.3	Aug. 6, 1888				32
J. & J. W. Elsworth Co.	80	Raritan bay	2.4	Feb. 6, 1888				60
J. & J. W. Elsworth Co.	86	Raritan bay	4.3	Mar. 5, 1888			1	08
J. & J. W. Elsworth Co.	79	Raritan bay	1.3	Mar. 5, 1888				32
J. & J. W. Elsworth Co.	455-A	Raritan bay	0.9	Mar. 11, 1889				23
J. & J. W. Elsworth Co.	285	Raritan bay	1.8	Aug. 13, 1889				45
J. & J. W. Elsworth Co.	84	Raritan bay	7.8	Nov. 7, 1888			1	95
J. & J. W. Elsworth Co.	85	Raritan bay	1.4	Nov. 7, 1888				35
J. & J. W. Elsworth Co.	205	Raritan bay	5.6	May 14, 1890			1	40
J. & J. W. Elsworth Co.	673	Raritan bay	1.8	Feb. 11, 1890				45
J. & J. W. Elsworth Co.	169	Raritan bay	1.6	May 14, 1889			1	95
J. & J. W. Elsworth Co.	111	Raritan bay	7.8	Nov. 12, 1888				32
J. & J. W. Elsworth Co.	82	Raritan bay	1.3	Nov. 7, 1888				23
J. & J. W. Elsworth Co.	297	Raritan bay	4.1	May 6, 1890			1	02
J. & J. W. Elsworth Co.	639	Raritan bay	5.8	Feb. 11, 1890			1	45

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SCHEDULE "C" — (*Continued*)

NAME	Lot	Location	Acres	Franchise granted	Annual tax
J. & J. W. Elsworth Co	667	Raritan bay	3.4	Feb. 11, 1890	$0 85
J. & J. W. Elsworth Co	672	Raritan bay	1.1	June 10, 1890	28
J. & J. W. Elsworth Co	755	Raritan bay	1.6	July 14, 1891	40
J. & J. W. Elsworth Co	643	Raritan bay	6.8	Feb. 11, 1890	1 70
J. & J. W. Elsworth Co	600	Raritan bay	3.8	Mar. 11, 1890	95
J. & J. W. Elsworth Co	729	Raritan bay	1.6	Mar. 18, 1891	40
J. & J. W. Elsworth Co	83	Raritan bay	2.8	Feb. 6, 1888	70
J. & J. W. Elsworth Co	787	Raritan bay	10.0	July 14, 1891	2 50
J. & J. W. Elsworth Co	647	Raritan bay	4.7	Feb. 11, 1890	1 18
J. & J. W. Elsworth Co	730	Raritan bay	2.4	Mar. 18, 1891	60
J. & J. W. Elsworth Co	641	Raritan bay	4.2	Feb. 11, 1890	1 05
J. & J. W. Elsworth Co	575	Raritan bay	9.6	Feb. 11, 1890	2 40
J. & J. W. Elsworth Co	364	Raritan bay	1.0	Mar. 11, 1890	25
J. & J. W. Elsworth Co	784	Raritan bay	1.6	Mar. 14, 1893	40
Elsworth & Polworth	376	Raritan bay	5.4	May 14, 1889	1 35
J. H. Elsworth	130	Raritan bay	7.2	Feb. 6, 1888	1 80
J. W. C. Englebrecht	599	Raritan bay	4.6	Mar. 11, 1890	1 15
J. W. C. Englebrecht	389	Raritan bay	3.7	Mar. 11, 1890	93
J. W. C. Englebrecht	591	Raritan bay	2.4	Mar. 11, 1890	60
Forrester & Hoag	347	Raritan bay	5.9	Aug. 13, 1889	1 48
Forrester & Hoag	353	Raritan bay	1.8	May 14, 1889	45
Forrester & Hoag	789	Raritan bay	10.2	July 14, 1891	2 55
Forrester & Hoag	801	Raritan bay	3.6	Jan. 12, 1892	90
Forrester & Hoag	669	Raritan bay	2.55	Mar. 11, 1890	64
Forrester & Hoag	874	Raritan bay	1.4	Feb. 14, 1893	35
Forrester & Hoag	873	Raritan bay	3.6	Feb. 14, 1893	90
Geo. E. Forrester	361	Raritan bay	1.6	Aug. 13, 1889	40
Geo. E. Forrester	359	Raritan bay	4.2	Aug. 13, 1889	1 05
Geo. E. Forrester	517	Raritan bay	2.6	Feb. 11, 1890	65
Geo. E. Forrester	515	Raritan bay	1.2	Feb. 11, 1890	30
Fraser & Houghwout	176	Raritan bay	14.8	May 14, 1889	3 70
Frazer & Houghwout	218	Raritan bay	7.0	Oct. 14, 1890	1 75
Frazer & Houghwout	783	Raritan bay	40.0	July 14, 1891	10 00
Frazer & Houghwout	504	Raritan bay	9.5	Aug. 9, 1892	2 38
Alexander C. Frazer	21	Raritan bay	0.7	Jan. 4, 1888	17
H. Fletcher Fordham	73	Long Island sound	69.0	Sept. 30, 1892	17 25
H. Fletcher Fordham	74	Long Island sound	69.0	Sept. 30, 1892	17 25
A. L. Field	70	Long Island sound	11.8	Sept. 8, 1891	2 95
Daniel Green	798	Raritan bay	0.6	July 14, 1891	15

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Daniel Green	800	Raritan bay	2.6	July 14, 1891	65			
Glenwood Oyster Co.	Several	Long Island sound	240.0	Dec. 8, 1891	60	00		
L. G. Griffing	13	Long Island sound	83.6	July 6, 1888	20	90		
John S. Hoag	875	Raritan bay	0.8	Feb. 14, 1893		20		
Wm. N. Houghwout	496	Raritan bay	6.2	Jan. 14, 1890	1	55		
Wm. N. Houghwout	512	Raritan bay	2.5	Mar. 11, 1890		63		
Wm. N. Houghwout	604	Raritan bay	42.2	Jan. 27, 1891	10	55		
Thomas W. Holbert	605	Raritan bay	1.8	Mar. 11, 1890		45		
Thomas W. Holbert	607	Raritan bay	7.3	Mar. 11, 1890	1	83		
William F. Hoyt	Several	Long Island sound	34.2	Jan. 12, 1892	8	55		
Haviland & Odell	8	Little Neck bay	2.5	Jan. 8, 1889		63		
Haviland & Odell	5, 6, 7	Little Neck bay	7.5	Jan. 8, 1889	1	88		
Haviland & Odell	15	Little Neck bay	2.5	Jan. 8, 1889		63		
Haviland & Odell	384	Little Neck bay	7.5	July 9, 1889	1	87		
Gould J. Jennings	128-A	Raritan bay	2.4	Mar. 11, 1890		60		
Theodore Johnson	39	Raritan bay	0.6	Nov. 7, 1888		15		
Theodore Johnson	38	Raritan bay	0.5	Feb. 12, 1890		13		
Theodore Johnson	426	Raritan bay	0.7	Mar. 11, 1890		18		
Theodore Johnson	35	Raritan bay	0.8	Dec. 8, 1891		20		
Theodore Johnson	731	Raritan bay	0.9	Dec. 8, 1891		22		
Nelson Jacklin	192	Raritan bay	1.0	Mar. 11, 1890		25		
Nelson Jacklin	546	Raritan bay	3.9	Feb. 11, 1890		98		
Nelson Jacklin	556	Raritan bay	2.0	Feb. 11, 1890		50		
Nelson Jacklin	774	Raritan bay	1.4	Feb. 11, 1890		35		
Nelson Jacklin	790	Raritan bay	1.0	Feb. 11, 1890		25		
Nelson Jacklin	828	Raritan bay	2.0	Feb. 11, 1890		50		
John Journeay	88	Raritan bay	2.5	Nov. 7, 1888		63		
William Joline	70	Raritan bay	10.5	Mar. 5, 1888	2	63		
David Joline	9	Raritan bay	1.3	Mar. 5, 1888		33		
David Joline	330	Raritan bay	3.6	Mar. 11, 1890		90		
David Joline	292	Raritan bay	4.9	Mar. 11, 1890	1	23		
Frank Joline	300	Raritan bay	4.1	May 14, 1889	1	03		
A. S. Joline	58	Raritan bay	11.4	Feb. 6, 1888	2	85		
A. S. Joline	340	Raritan bay	1.6	Nov. 12, 1889		40		
A. S. Joline	242	Raritan bay	6.3	Mar. 11, 1890	1	58		
A. S. Joline	59	Raritan bay	4.1	Aug. 30, 1892	1	03		
A. S. Joline	435	Raritan bay	5.3	Oct. 14, 1890	1	32		
A. S. Joline	675	Raritan bay	5.2	Aug. 30, 1892	1	30		
A. S. Joline	745	Raritan bay	10.0	Aug. 30, 1892	2	50		
Jones & Burbank	502	Raritan bay	14.4	Mar. 11, 1890	3	60		
Jones & Burbank	500	Raritan bay	40.0	Mar. 11, 1890	10	00		
Jones & Burbank	510	Raritan bay	3.3	Mar. 11, 1890		83		
Jones & Burbank	695	Raritan bay	19.6	Mar. 12, 1891	4	90		
Heirs of B. Joline	290	Raritan bay	3.0	April 1, 1890		75		
H. Journeay	95	Raritan bay	1.5	Feb. 11, 1890		38		
H. Journeay	597	Raritan bay	2.7	Feb. 11, 1890		67		
Thomas L. Jobes	550	Raritan bay	5.3	Feb. 11, 1890	.1	33		
Thomas L. Jobes	548	Raritan bay	3.5	Feb. 11, 1890		88		

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SCHEDULE "C" — (*Continued*)

NAME	Lot	Location	Acres	Franchise granted	Annual tax
Thomas L. Jobes	579	Raritan bay	1.4	Feb. 11, 1890	$0 35
Thomas L. Jobes	573	Raritan bay	1.2	Feb. 11, 1890	30
Thomas L. Jobes	581	Raritan bay	10.1	Feb. 11, 1890	2 53
Thomas L. Jobes	840	Raritan bay	1.6	Aug. 9, 1892	40
David Johnson	167	Raritan bay	2.0	May 14, 1889	50
David Johnson	262	Raritan bay	1.8	May 14, 1890	45
David Johnson	606	Raritan bay	2.2	Mar. 11, 1890	55
David Johnson	608	Raritan bay	2.6	Mar. 11, 1890	65
David Johnson	610	Raritan bay	1.1	Mar. 11, 1890	28
S. C., D. A. & M. L. Joline	857	Raritan bay	1.8	Feb. 11, 1892	45
Joline Bros	60	Raritan bay	4.8	Feb. 11, 1890	1 20
Joline Bros	343	Raritan bay	4.1	Oct. 14, 1890	1 02
Joseph L. Kerrigan	15	Long Island sound	197.8	Aug. 6, 1888	49 40
R. W. La Forge	212	Raritan bay	1.5	Mar. 11, 1890	38
R. W. LaForge	143	Raritan bay	1.0	Feb. 14, 1893	25
R. W. LaForge	872	Raritan bay	0.8	Feb. 14, 1893	20
R. W. & W. W. LaForge	281	Raritan bay	5.6	May 14, 1889	1 40
W. W. LaForge	596	Raritan bay	3.9	Mar. 11, 1890	97
W. W. LaForge	594	Raritan bay	1.5	Mar. 11, 1890	37
W. W. LaForge	592	Raritan bay	1.6	Mar. 11, 1890	40
W. W. LaForge	142-B	Raritan bay	3.5	Mar. 11, 1890	87
W. W. LaForge	123	Raritan bay	3.4	Aug. 9, 1892	85
Clarence Lissenden	172	Raritan bay	5.0	Mar. 11, 1890	1 25
Elsworth B. Lewis	177	Raritan bay	1.6	May 14, 1889	40
Elsworth B. Lewis	189	Raritan bay	1.2	May 14, 1889	30
Elsworth B. Lewis	191	Raritan bay	0.5	May 14, 1889	13
Elsworth B. Lewis	175	Raritan bay	1.5	May 14, 1889	37
Elsworth B. Lewis	181	Raritan bay	5.0	Aug. 12, 1890	1 25
Elsworth B. Lewis	682	Raritan bay	0.8	Aug. 12, 1890	20
LaForge & Thompson	422½	Raritan bay	2.9	July 14, 1891	73
J. E. LaForge	358	Raritan bay	3.0	May 14, 1889	75
J. E. LaForge	366	Raritan bay	2.1	May 14, 1889	53
Abram Latourette	433	Raritan bay	13.0	May 14, 1889	3 25
Antoinette S. Lamb	32	Long Island sound	79.4	April 2, 1888	19 85
Azel F. Merrell	430	Raritan bay	3.4	Mar. 11, 1890	85
Azel F. Merrell	159	Raritan bay	12.3	Mar. 11, 1890	3 08
Azel F. Merrell	278	Raritan bay	4.9	Mar. 11, 1890	1 23
Azel F. Merrell	428	Raritan bay	5.9	Mar. 11, 1890	1 48
Azel F. Merrell	494	Raritan bay	5.1	Oct. 14, 1890	1 28

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Axel F. Merrell	118	Raritan bay	5.2	Feb. 6, 1888	1	30
Axel F. Merrell	434	Raritan bay	1.3	Mar. 11, 1890		33
Axel F. Merrell	266	Raritan bay	3.0	Mar. 11, 1890		75
Axel F. Merrell	485	Raritan bay	10.2	Jan. 14, 1890	2	55
Axel F. Merrell	473	Raritan bay	2.9	May 14, 1890		73
Axel F. Merrell	3	Raritan bay	5.1	Mar. 11, 1890	1	27
Axel F. Merrell	508	Raritan bay	6.0	Sept. 30, 1892	1	50
Axel F. Merrell	160	Raritan bay	11.1	Mar. 11, 1890	2	78
Axel F. Merrell	193	Raritan bay	11.9	May 14, 1889	2	98
Axel F. Merrell	161	Raritan bay	6.8	May 14, 1889	1	70
Axel F. Merrell	195	Raritan bay	8.5	May 14, 1889	2	12
Axel F. Merrell	270	Raritan bay	8.8	May 14, 1889	2	20
Axel F. Merrell	282	Raritan bay	9.5	May 14, 1889	2	38
Axel F. Merrell	280	Raritan bay	4.0	May 14, 1889	1	00
Axel F. Merrell	276	Raritan bay	22.8	May 14, 1889	5	70
Axel F. Merrell	743	Raritan bay	0.6	Feb. 11, 1892		15
Axel F. Merrell	864	Raritan bay	25.4	Dec. 29, 1892	6	35
Axel F. Merrell	877	Raritan bay	6.2	Feb. 14, 1893	1	55
Axel F. Merrell	863	Raritan bay	18.8	Feb. 14, 1893	4	70
Axel F. Merrell	168	Raritan bay	6.6	May 14, 1889	1	65
Axel F. Merrell	170	Raritan bay	6.0	May 14, 1889	1	50
Axel F. Merrell	484	Raritan bay	3.4	Jan. 14, 1890		85
Axel F. Merrell	162	Raritan bay	17.5	Mar. 11, 1890	4	38
Axel F. Merrell	674	Raritan bay	2.8	June 10, 1890		70
Axel F. Merrell	8	Raritan bay	1.2	Nov. 7, 1888		30
Abram Martineau	385	Raritan bay	4.2	May 14, 1889	1	05
Abram Martineau	506	Raritan bay	8.95	Mar. 11, 1890	2	24
Abram Martineau	377	Raritan bay	4.0	Mar. 11, 1890	1	00
Abram Martineau	228	Raritan bay	9.0	July 9, 1889	2	25
Abram Martineau	230	Raritan bay	22.8	Dec. 29, 1892	5	70
Abram Martineau	865	Raritan bay	11.0	Dec. 29, 1892	2	75
E. P. Manee	63	Raritan bay	5.4	Jan. 4, 1888	1	35
George Marshall	231	Raritan bay	4.0	July 9, 1890	1	00
George Marshall	267	Raritan bay	6.8	Mar. 11, 1890	1	70
Marcellus T. Merrell	395	Raritan bay	5.2	July 9, 1890	1	30
Marcellus T. Merrell	397	Raritan bay	4.8	Mar. 11, 1890	1	20
John I. Merrell	524	Raritan bay	8.6	Mar. 11, 1890	2	15
John I. Merrell	504	Raritan bay	9.5	Aug. 9, 1892	2	37
John I. Merrell	833	Raritan bay	5.2	Mar. 12, 1891	1	30
John I. Merrell	446	Raritan bay	0.5	Mar. 11, 1890		12
John I. Merrell	258	Raritan bay	13.8	Mar. 12, 1889	3	45
John I. Merrell	477	Raritan bay	12.5	Feb. 11, 1890	3	12
John I. Merrell	478	Raritan bay	13.2	Feb. 11, 1890	3	30
John I. Merrell	474	Raritan bay	4.5	Feb. 11, 1890	1	13
John I. Merrell	475	Raritan bay	7.5	Feb. 11, 1890	1	88
John I. Merrell	476	Raritan bay	5.1	Feb. 11, 1890	1	28
John I. Merrell	232	Raritan bay	12.0	Oct. 14, 1890	3	00
John I. Merrell	352	Raritan bay	4.3	May 14, 1889	1	08

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SCHEDULE "C" — (*Continued*)

NAME	Lot	Location	Acres	Franchise granted	Annual tax
John I. Merrell	460	Raritan bay	2.4	Feb. 11, 1890	$0 60
Thomas S. Merrell	527	Raritan bay	5.1	Mar. 11, 1890	1 28
Thomas S. Merrell	525	Raritan bay	4.1	Mar. 11, 1890	1 03
Thomas S. Merrell	523	Raritan bay	0.9	Mar. 11, 1890	22
Thomas S. Merrell	533	Raritan bay	5.4	Mar. 11, 1890	1 35
Thomas S. Merrell	535	Raritan bay	3.7	Mar. 11, 1890	93
Thomas S. Merrell	844	Raritan bay	3.0	Feb. 11, 1892	75
Thomas S. Merrell	693	Raritan bay	2.4	Mar. 12, 1891	60
Thomas S. Merrell	222	Raritan bay	14.8	Oct. 14, 1890	3 70
Thomas S. Merrell	148-A	Raritan bay	4.8	Aug. 13, 1889	1 20
Thomas S. Merrell	529	Raritan bay	16.1	Mar. 11, 1890	4 03
John D. Merrell	869	Raritan bay	1.8	Feb. 14, 1893	45
Henry S. Marshall	653	Raritan bay	7.9	Mar. 11, 1890	1 97
John Marshall	649	Raritan bay	3.8	Mar. 11, 1890	95
John Marshall	651	Raritan bay	3.6	Mar. 11, 1890	90
John Marshall	661	Raritan bay	1.9	Mar. 11, 1890	47
John Marshall	671	Raritan bay	4.95	Mar. 11, 1890	1 24
John Marshall	744	Raritan bay	4.0	July 14, 1891	1 00
John Marshall	746	Raritan bay	1.2	July 14, 1891	30
John Marshall	750	Raritan bay	2.8	July 14, 1891	70
George H. Mance	542	Raritan bay	1.3	Feb. 11, 1890	33
Lilly Merrell	677	Raritan bay	2.0	June 10, 1890	50
Wilbur M. Manee	156	Raritan bay	2.1	Sept. 4, 1888	53
Wilbur M. Manee	76	Raritan bay	2.1	Mar. 5, 1888	53
Wilbur M. Manee	452	Raritan bay	2.3	Feb. 11, 1890	58
J. J. Manee	658	Raritan bay	0.4	Mar. 11, 1890	10
J. J. Manee	64	Raritan bay	4.0	Mar. 11, 1890	1 00
Abram & William Manee	806	Raritan bay	3.4	July 14, 1891	85
Abram & William Manee	814	Raritan bay	6.6	July 14, 1891	1 65
Abram & William Manee	816	Raritan bay	3.0	July 14, 1891	75
Abram & William Manee	819	Raritan bay	4.4	July 14, 1891	1 10
Abram & William Manee	832	Raritan bay	1.1	Aug. 7, 1891	28
Abram Manee	808	Raritan bay	4.4	July 14, 1891	1 10
Abram Manee	815	Raritan bay	4.87	July 14, 1891	1 20
Abram Manee	817	Raritan bay	2.0	July 14, 1891	50
Abram Manee	461	Raritan bay	2.0	May 12, 1891	50
Marshall & Bedell	772	Raritan bay	2.3	Jan. 12, 1892	58
Mersereau & Lewis	669	Raritan bay	2.55	Mar. 11, 1890	63
William C. Porth	329	Raritan bay	14.5	Mar. 11, 1890	3 63

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William C. Porth	323	Raritan bay	13.8	July 9, 1889	3	45
William C. Porth	325	Raritan bay	8.0	July 9, 1889	2	00
William C. Porth	319	Raritan bay	5.0	May 14, 1889	1	25
William C. Porth	333	Raritan bay	1.5	Mar. 11, 1890		37
William C. Porth	843	Raritan bay	4.6	Feb. 11, 1892	1	15
William C. Porth	321	Raritan bay	3.2	July 9, 1889		80
William C. Porth	331	Raritan bay	5.2	July 9, 1889	1	30
William C. Porth	327	Raritan bay	5.0	May 14, 1889	1	25
William C. Porth	412	Raritan bay	2.5	July 9, 1890		63
William C. Porth	779	Raritan bay	26.4	July 14, 1891	6	60
William C. Porth	408	Raritan bay	5.0	Aug. 7, 1891	1	25
William C. Porth	781	Raritan bay	42.8	Dec. 29, 1892	10	70
New York Oyster Co.	565	Raritan bay	2.5	Mar. 11, 1890		63
New York Oyster Co.	549	Raritan bay	2.6	Mar. 11, 1890		65
New York Oyster Co.	622	Raritan bay	16.9	Mar. 11, 1890	4	23
New York Oyster Co.	604	Raritan bay	1.4	Mar. 11, 1890		35
New York Fishing Club	67	Raritan bay	5.3	June 10, 1890	1	33
J. E. Noe	33	Raritan bay	0.9	Mar. 5, 1888		23
J. E. Noe	467	Raritan bay	4.15	Jan. 14, 1890	1	04
J. E. Noe	713	Raritan bay	2.0	Feb. 10, 1891		50
D. O. Noe & Son	150	Raritan bay	0.7	Oct. 18, 1890		18
D. O. Noe & Son	27	Raritan bay	1.4	Oct. 14, 1890		35
D. O. Noe & Son	32	Raritan bay	0.7	Oct. 14, 1890		17
D. O. Noe & Son	43	Raritan bay	3.0	Oct. 14, 1890		75
D. O. Noe & Son	151	Raritan bay	0.7	Oct. 14, 1890		17
D. O. Noe & Son	23	Raritan bay	0.7	Nov. 7, 1889		20
D. O. Noe & Son	503	Raritan bay	8.1	Feb. 11, 1890	2	03
D. O. Noe & Son	835	Raritan bay	9.6	Mar. 12, 1891	2	40
D. O. Noe & Son	5	Raritan bay	5.7	Nov. 7, 1888	1	42
George Newbury	635	Raritan bay	1.2	Feb. 11, 1890		30
Northport Oyster Co.	Several	Raritan bay	65.0	Mar. 14, 1893	16	25
Polworth & Elsworth	245	Raritan bay	3.6	May 14, 1889		90
Polworth & Elsworth	157	Raritan bay	8.3	May 14, 1889	2	07
Polworth & Elsworth	241	Raritan bay	12.0	May 14, 1889	3	00
Polworth & Elsworth	243	Raritan bay	7.0	May 14, 1889	1	75
Polworth & Elsworth	247	Raritan bay	6.5	May 14, 1889	1	63
Polworth & Elsworth	233	Raritan bay	11.0	May 14, 1889	2	75
Polworth & Elsworth	436	Raritan bay	4.3	Mar. 11, 1890	1	07
Polworth & Elsworth	511	Raritan bay	13.5	Mar. 11, 1890	3	37
Polworth & Elsworth	513	Raritan bay	2.3	Mar. 11, 1890		58
Polworth & Elsworth	438	Raritan bay	8.0	Mar. 11, 1890	2	00
Polworth & Elsworth	235	Raritan bay	6.4	Mar. 11, 1890	1	60
Polworth & Elsworth	237	Raritan bay	14.4	Mar. 11, 1890	3	60
Polworth & Elsworth	239	Raritan bay	20.5	Mar. 11, 1890	5	12
Polworth & Elsworth	251	Raritan bay	2.6	May 6, 1890		65
Polworth & Elsworth	558	Raritan bay	5.5	Feb. 11, 1890	1	38
Polworth & Elsworth	628	Raritan bay	1.1	Mar. 11, 1890		27
Polworth & Elsworth	956	Raritan bay	2.0	Mar. 11, 1890		50

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SCHEDULE "C"—(*Continued*)

NAME	Lot	Location	Acres	Franchise granted	Annual tax
Polworth & Elsworth	133	Raritan bay	1.9	May 6, 1890	$0 48
Polworth & Elsworth	372	Raritan bay	2.0	May 14, 1889	50
Polworth & Elsworth	657	Raritan bay	1.8	Mar. 11, 1890	45
Polworth & Elsworth	659	Raritan bay	4.0	Mar. 11, 1890	1 00
Polworth & Elsworth	603	Raritan bay	2.5	Mar. 11, 1890	63
David Price	101	Raritan bay	1.0	Nov. 7, 1888	25
David Price	30	Raritan bay	1.8	Nov. 7, 1888	45
Elmer Price	274	Raritan bay	1.8	Nov. 7, 1888	45
Elmer Price	260	Raritan bay	3.0	Aug. 13, 1889	75
Elmer Price	264	Raritan bay	1.2	May 14, 1889	30
Elmer Price	268	Raritan bay	1.6	Mar. 11, 1890	40
Elmer Price	250	Raritan bay	1.5	Mar. 11, 1890	38
Elmer Price	244	Raritan bay	0.8	Mar. 11, 1890	20
Elmer Price	272	Raritan bay	2.0	May 6, 1890	50
Elmer Price	712	Raritan bay	1.4	Mar. 12, 1891	35
Elmer Price	6	Raritan bay	1.0	Mar. 5, 1888	25
Nils Pederson	134	Raritan bay	4.3	Mar. 5, 1888	1 07
John H. Price	196	Raritan bay	1.1	May 14, 1889	27
John H. Price	198	Raritan bay	2.0	May 14, 1889	50
E. M. Post	526	Raritan bay	4.0	Mar. 11, 1890	1 00
E. M. Post	520	Raritan bay	6.5	Mar. 11, 1890	1 63
E. M. Post	516	Raritan bay	7.5	Mar. 11, 1890	1 87
E. M. Post	514	Raritan bay	311.0	Mar. 11, 1890	78
Charles E. Palmer & Son	Several	Long Island sound	250.0	Dec. 8, 1899	62 50
Charles E. Palmer & Son	Several	Long Island sound	58.0	Dec. 8, 1899	14 50
Charles E. Palmer & Son	671	Raritan bay	4.95	Mar. 11, 1890	1 23
C. E., C. F. & H. Palmer	859	Raritan bay	64.8	Aug. 9, 1892	16 20
Purity Blue Point Oyster Co	Several	Long Island sound	240.0	Dec. 29, 1892	60 00
Croel B. Price	710	Raritan bay	2.0	Feb. 10, 1899	50
Croel B. Price	711	Raritan bay	0.5	Feb. 10, 1899	15
Croel B. Price	738	Raritan bay	3.0	July 14, 1899	75
Croel B. Price	48	Raritan bay	3.4	Feb. 6, 1888	85
Pausch Bros. Oyster Co	12	Long Island sound	213.2	Nov. 7, 1888	53 30
Pausch Bros. Oyster Co	13	Long Island sound	68.4	Nov. 7, 1888	17 10
Pausch Bros. Oyster Co	Several	Long Island sound	67.0	Dec. 8, 1891	16 75
Price & Merrell	4	Raritan bay	4.6	April 2, 1888	1 15
Radel Oyster Co	5	Long Island sound	171.2	Dec. 11, 1888	42 80
Radel Oyster Co	7	Long Island sound	235.2	Nov. 7, 1888	58 80
Radel Oyster Co	4	Long Island sound	101.3	Jan. 8, 1889	25 33

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Radell Oyster Co.	6	Long Island sound	146.4	Nov. 7, 1888	36	00	
Andrew Radel	3	Long Island sound	173.5	Nov. 7, 1888	43	38	
Andrew Radel	75	Long Island sound	104.6	Sept. 30, 1892	26	15	
Andrew Radel	76	Long Island sound	104.2	Sept. 30, 1892	26	05	
Andrew Radel	77	Long Island sound	104.0	Dec. 28, 1892	26	00	
Andrew Radel	78	Long Island sound	104.0	Sept. 11, 1900	26	00	
Andrew Radel	98	Long Island sound	104.0	Sept. 11, 1900	26	00	
Andrew Radel	99	Long Island sound	104.0	Sept. 11, 1900	26	00	
Frank Rogers	36	Long Island sound	110.4	Nov. 7, 1888	27	60	
Frank Rogers	37	Long Island sound	98.0	Nov. 7, 1888	24	50	
Frank Rogers	35	Long Island sound	139.0	Nov. 7, 1888	34	75	
Frank Rogers	103	Long Island sound	29.8	Aug. 13, 1901	7	45	
George M. Still	284	Raritan bay	6.6	May 14, 1889	1	65	
George M. Still	171	Raritan bay	12.8	May 14, 1889	3	20	
George M. Still	824	Raritan bay	3.2	Aug. 7, 1891		80	
George M. Still	660	Raritan bay	2.1	Mar. 11, 1890		53	
George M. Still	521	Raritan bay	2.7	June 10, 1890		67	
George M. Still	442	Raritan bay	2.1	Jan. 14, 1890		55	
George M. Still	411	Raritan bay	5.4	Mar. 11, 1890	1	35	
George M. Still	401	Raritan bay	3.0	Mar. 11, 1890		75	
George M. Still	805	Raritan bay	10.6	July 14, 1891	2	65	
George M. Still	253	Raritan bay	2.6	May 14, 1889		65	
George M. Still	440	Raritan bay	1.4	Jan. 14, 1890		35	
George M. Still	823	Raritan bay	2.4	Aug. 7, 1891		60	
Thomas Silk	613	Raritan bay	0.9	Mar. 11, 1890		23	
F. T. Sprague	409	Raritan bay	2.5	Mar. 11, 1890		63	
F. T. Sprague	413	Raritan bay	2.4	Mar. 11, 1890		60	
John S. Sleight	715	Raritan bay	5.8	Jan. 27, 1891	1	45	
Sealshipt Oyster System	9	Long Island sound	106.6	Jan. 4, 1888	26	65	
Sealshipt Oyster System	10	Smithtown bay	106.1	April 2, 1888	26	53	
Sealshipt Oyster System	8	Smithtown bay	106.4	April 2, 1888	26	60	
Sealshipt Oyster System	7	Smithtown bay	107.8	April 2, 1888	26	95	
Sealshipt Oyster System	6	Smithtown bay	108.9	April 2, 1888	27	23	
Sealshipt Oyster System	5	Smithtown bay	109.5	April 2, 1888	27	38	
Sealshipt Oyster System	4	Smithtown bay	110.2	Jan. 4, 1888	27	55	
Sealshipt Oyster System	3	Smithtown bay	105.0	April 2, 1888	26	25	
Sealshipt Oyster System	2	Smithtown bay	112.8	April 2, 1888	28	20	
Sealshipt Oyster System	1	Smithtown bay	113.2	April 2, 1888	28	30	
Sealshipt Oyster System	Section C	Long Island sound	250.0	July 6, 1888	62	50	
Sealshipt Oyster System	27	Long Island sound	193.5	Nov. 7, 1888	48	38	
Sealshipt Oyster System	28	Long Island sound	76.2	April 2, 1888	19	05	
Sealshipt Oyster System	Several	Long Island sound	100.0	Jan. 12, 1890	25	00	
Sealshipt Oyster System	Several	Long Island sound	100.0	Oct. 1, 1888	25	00	
Sealshipt Oyster System	20	Long Island sound	249.6	Nov. 7, 1888	62	40	
Sealshipt Oyster System	21	Long Island sound	74.5	July 6, 1888	18	63	
Sealshipt Oyster System	22	Long Island sound	58.9	Nov. 7, 1888	14	72	
Sealshipt Oyster System	19	Long Island sound	249.0	May 14, 1889	62	25	
Sealshipt Oyster System	18	Long Island sound	249.0	Nov. 7, 1888	62	25	

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SCHEDULE "C"—(*Continued*)

NAME	Lot	Location	Acres	Franchise granted	Annual tax
Sealshipt Oyster System	40	Long Island sound	46.3	Nov. 7, 1888	11 57
Sealshipt Oyster System	26	Long Island sound	115.7	April 2, 1888	28 93
Sealshipt Oyster System	787	Raritan bay	6.6	July 14, 1891	1 65
Sealshipt Oyster System	498	Raritan bay	9.5	Oct. 14, 1890	2 37
Sealshipt Oyster System	259	Raritan bay	6.6	Aug. 13, 1889	1 65
Sealshipt Oyster System	354	Raritan bay	1.9	Nov. 12, 1889	48
Sealshipt Oyster System	490	Raritan bay	9.8	Oct. 14, 1890	2 45
Sealshipt Oyster System	463	Raritan bay	6.6	Mar. 11, 1890	1 65
Sealshipt Oyster System	891	Raritan bay	151.2	Oct. 7, 1897	37 80
Sealshipt Oyster System	Several	Long Island sound	150.0	Dec. 29, 1892	37 50
Sealshipt Oyster System	Several	Long Island sound	250.0	Mar. 14, 1893	62 50
Sealshipt Oyster System	Several	Long Island sound	250.0	Mar. 14, 1893	62 50
Sealshipt Oyster System	Several	Long Island sound	260.0	Nov. 7, 1892	65 00
Sealshipt Oyster System	Several	Long Island sound	80.0	Nov. 15, 1898	20 00
Sealshipt Oyster System	Several	Long Island sound	80.0	Dec. 20, 1898	20 00
Sealshipt Oyster System	Several	Long Island sound	80.0	Nov. 15, 1898	20 00
Sealshipt Oyster System	Several	Long Island sound	150.0	Nov. 15, 1898	37 50
Sealshipt Oyster System	Several	Long Island sound	240.0	Nov. 15, 1898	60 00
Sealshipt Oyster System	Several	Long Island sound	70.0	Nov. 15, 1898	17 15
Sealshipt Oyster System	88	Long Island sound	128.2	Mar. 27, 1900	32 05
C. S. Sofield	34	Raritan bay	0.7	Jan. 4, 1888	17
C. S. Sofield	28	Raritan bay	0.6	Jan. 4, 1888	15
R. Lawrence Smith	29	Long Island sound	74.8	April 2, 1888	18 70
R. Lawrence Smith	33	Long Island sound	78.7	April 2, 1888	19 67
E. Marshall Smith	30	Long Island sound	75.6	April 2, 1888	18 90
E. Marshall Smith	31	Long Island sound	73.2	April 2, 1888	18 30
Sterling Oyster Co	Several	Long Island sound	210.0	Dec. 8, 1891	52 50
Suwassett Oyster Co	72	Long Island sound	99.2	Sept. 30, 1892	24 80
Suwassett Oyster Co	101	Long Island sound	167.4	Sept. 11, 1900	41 85
Suwassett Oyster Co	100	Long Island sound	104.0	Sept. 11, 1900	26 00
Suwassett Oyster Co	102	Long Island sound	200.0	Nov. 13, 1900	50 00
E. J. Still	69	Raritan bay	2.2	Mar. 5, 1888	55
E. J. Still	66	Raritan bay	2.0	Nov. 7, 1888	50
E. J. Still	68	Raritan bay	0.8	Mar. 11, 1890	20
E. J. Still	341	Raritan bay	2.2	Oct. 14, 1890	55
A. C. Sofield	46	Raritan bay	0.7	Mar. 11, 1890	17
A. C. Sofield	24	Raritan bay	0.8	Mar. 11, 1890	20
John M. Sleight	129	Raritan bay	1.1	Jan. 4, 1888	28
John M. Sleight	125	Raritan bay	11.9	Mar. 5, 1888	2 97

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J. & B. K. Simonson	51	Raritan bay	1.4	Feb. 6, 1888		35
J. & B. K. Simonson	49	Raritan bay	1.8	Mar. 5, 1888		45
Standard Oyster Co	186	Raritan bay	5.1	May 14, 1889	1	28
Standard Oyster Co	226	Raritan bay	18.0	Oct. 14, 1890	4	50
Standard Oyster Co	240	Raritan bay	3.2	Oct. 14, 1890		80
Standard Oyster Co	654	Raritan bay	8.2	Oct. 14, 1890	2	05
Standard Oyster Co	216	Raritan bay	12.6	Oct. 14, 1890	3	15
Standard Oyster Co	172	Raritan bay	9.3	Mar. 11, 1890	2	33
Standard Oyster Co	256	Raritan bay	25.3	Mar. 11, 1890	6	32
Standard Oyster Co	53	Raritan bay	6.8	Mar. 5, 1888	1	70
Standard Oyster Co	73	Raritan bay	3.8	Mar. 5, 1888		95
Standard Oyster Co	483	Raritan bay	4.4	Oct. 14, 1890		60
Standard Oyster Co	492	Raritan bay	5.9	Oct. 14, 1890	1	48
Standard Oyster Co	499	Raritan bay	5.8	Oct. 14, 1890	1	45
Standard Oyster Co	74	Raritan bay	6.6	Feb. 6, 1888	1	65
Standard Oyster Co	41	Raritan bay	0.5	Nov. 7, 1888		13
Standard Oyster Co	40	Raritan bay	0.4	Feb. 14, 1903		10
Standard Oyster Co	856	Raritan bay	5.8	Dec. 8, 1891	1	45
Standard Oyster Co	174	Raritan bay	18.4	May 14, 1889	4	60
Standard Oyster Co	147	Raritan bay	37.6	May 14, 1889	9	40
Standard Oyster Co	493	Raritan bay	9.8	Oct. 14, 1890	2	45
Standard Oyster Co	676	Raritan bay	167.0	Feb. 10, 1891	41	75
Standard Oyster Co	Several	Long Island sound	250.0	Sept. 4, 1888	62	50
Standard Oyster Co	252	Raritan bay	26.0	Mar. 11, 1890	5	00
Standard Oyster Co	479	Raritan bay	8.6	June 10, 1890	2	15
Standard Oyster Co	860	Raritan bay	11.2	Dec. 29, 1892	2	80
Standard Oyster Co	238	Raritan bay	29.4	Aug. 12, 1890	7	25
S. B. Sprague	65	Raritan bay	5.2	Feb. 6, 1888	1	30
C. C. Sprague	355	Raritan bay	2.5	May 14, 1889		63
C. C. Sprague	286	Raritan bay	1.7	May 14, 1889		43
W. W. Smith	67	Long Island sound	12.3	July 9, 1889	3	08
Alva W. Sharratt	488	Raritan bay	4.5	Jan. 14, 1890	1	12
Alva W. Sharratt	506	Raritan bay	8.95	Mar. 11, 1890	2	24
Alva W. Sharratt	683	Raritan bay	3.6	Jan. 27, 1891		90
Alva W. Sharratt	656	Raritan bay	13.2	Mar. 14, 1893	3	30
George W. Sanbeg	522	Raritan bay	4.2	Mar. 14, 1890	1	05
George H. Sharrett	486	Raritan bay	6.2	Jan. 14, 1890	1	55
Bertha Sharrett	148	Raritan bay	4.2	Aug. 13, 1890	1	05
Steinmire & Fisher	348	Raritan bay	9.6	May 14, 1889	2	40
Steinmire & Fisher	342	Raritan bay	5.0	Nov. 12, 1889	1	25
David Simonson	822	Raritan bay	2.8	Aug. 7, 1889	1	20
David Simonson	825	Raritan bay	1.4	Aug. 7, 1891		35
George E. Sprague	751	Raritan bay	1.0	July 14, 1891		25
C. B. Sprague	749	Raritan bay	1.9	July 14, 1891		48
C. B. Sprague	753	Raritan bay	1.4	July 14, 1891		35
Wesley Thompson	126	Raritan bay	5.8	Feb. 6, 1888	1	45
Wesley Thompson	642	Raritan bay	3.7	Mar. 11, 1890		93
Wesley Thompson	640	Raritan bay	2.1	Mar. 11, 1890		52

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SCHEDULE "C" — (*Concluded*)

NAME	Lot	Location	Acres	Franchise granted	Annual tax
Wesley Thompson	7776	Raritan bay	4.6	July 14, 1891	$1 15
W. H. B. Totten	19	Raritan bay	6.8	July 14, 1889	1 70
Henry Van Name	56	Raritan bay	5.6	Feb. 6, 1888	1 40
M. & P. M. Van Name	12	Raritan bay	6.6	Jan. 4, 1888	1 65
M. & P. M. Van Name	12½	Raritan bay	0.4	Mar. 12, 1889	10
D. W. Van Name	55	Raritan bay	5.6	Mar. 11, 1890	1 30
D W. Van Name	697	Raritan bay	1.3	Mar. 12, 1891	32
J. M. Van Wyck	398	Raritan bay	3.2	Mar. 14, 1892	80
H. S. Van Wagoner	567	Raritan bay	4.2	Feb. 11, 1890	1 60
Chas. H. Vroom	Several	Long Island sound	85.8	Jan. 12, 1892	21 45
John H. Vanderveer	Several	Long Island sound	120.0	Mar. 18, 1891	30 00
John H. Vanderveer	Several	Long Island sound	110.0	Oct. 13, 1891	27 50
Christian Walle	279	Raritan bay	2.2	May 14, 1889	55
Christian Walle	626	Raritan bay	1.5	Mar. 11, 1890	38
Christian Walle	396	Raritan bay	1.1	Mar. 11, 1890	28
Christian Walle	679	Raritan bay	4.7	June 10, 1890	1 18
Christian Walle	394	Raritan bay	2.2	Feb. 11, 1892	55
A. W. Woglom	769	Raritan bay	1.7	Feb. 11, 1892	42
A. W. Woglom	777	Raritan bay	1.9	Aug. 7, 1891	47
George T. Woglom	20	Raritan bay	3.7	Nov. 7, 1888	92
J. C. Winant	765	Raritan bay	0.8	Feb. 10, 1891	20
Fred Wagner	431	Raritan bay	3.5	May 14, 1890	88
G. P. Wright & Son	491	Raritan bay	1.5	Oct. 14, 1890	38
Mrs. Chas. Zeigler	414½	Raritan bay	2.15	Nov. 12, 1889	54
Mrs. Chas. Zeigler	416	Raritan bay	2.3	Nov. 12, 1889	58
Mrs. Chas. Zeigler	422	Raritan bay	2.9	June 10, 1890	73
Total	.....	.....	16,035.6	.....	$4,008 90

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FRANCHISES ASSIGNED TO THE STATE OF NEW YORK DURING FISCAL YEAR ENDING SEPTEMBER 30, 1913

Lot	Location	Name	Acres
19.....	Raritan bay.....	W. H. B. Totten.....	6.8
655.....	Raritan bay.....	Charles Bogardus.....	7.4
555.....	Raritan bay.....	J. & J. W. Elsworth Co.....	9.2
557.....	Raritan bay.....	J. & J. W. Elsworth Co.....	13.9
721.....	Raritan bay.....	J. & J. W. Elsworth Co.....	7.6
615.....	Raritan bay.....	J. & J. W. Elsworth Co.....	14.9
173.....	Raritan bay.....	J. & J. W. Elsworth Co.....	76.
241.....	Raritan bay.....	Polworth & Elsworth.....	12.
			147.8

LEASES ASSIGNED TO THE STATE OF NEW YORK DURING FISCAL YEAR ENDING SEPTEMBER 30, 1913

Lot	Location	Name	Acres
462.....	Raritan bay.....	R. W. & W. W. LaForge.....	1.2
250.....	East Chester bay.....	Robert Lee.....	9.2
245.....	East Chester bay.....	F. C. Glasier.....	23.6
955.....	Raritan bay.....	New York Oyster Co.....	42.8
Sev.....	Long Island sound.....	F. F. Downs.....	125.
Sev.....	Long Island sound.....	Mills & Ronik.....	193.
Sev.....	Long Island sound.....	Oyster Bay Oyster Co.....	145.
Sev.....	Long Island sound.....	Oyster Bay Oyster Co.....	30.
235.....	Pelham bay.....	James A. Deveaugh.....	12.4
318.....	Long Island sound.....	Richard M. Ellard.....	10.
319.....	Long Island sound.....	Richard M. Ellard.....	4.8
Sev.....	Long Island sound.....	William J. Mills.....	50.
			647.

RENTS COLLECTED DURING THE FISCAL YEAR FOR LEASES THAT FALL DUE AT IRREGULAR PERIODS EXTENDING TO CORRESPONDING DATES IN 1914

Schedule "A"

Name	Lot	Date	Amount
Pausch Bros. Oyster Co.....	117	Jan. 9, 1913	$4 40
Pausch Bros. Oyster Co.....	315	Mar. 11, 1913	71 20
Sealshipt Oyster System.....	924	Mar. 27, 1913	116 40
New York Oyster Co.....	926	April 29, 1913	78 80
New York Oyster Co.....	1009	April 29, 1913	90 00
Pausch Bros. Oyster Co.....	Sev.	May 9, 1913	37 50
Pausch Bros. Oyster Co.....	Sev.	May 9, 1913	24 55
Pausch Bros. Oyster Co.....	108	May 9, 1913	6 25
Alexander C. Frazer.....	1012	May 10, 1913	370 20
Clarence De Hart.....	1013	May 13, 1913	202 00
Clarence De Hart.....	1015	May 13, 1912	440 00
John I. Merrell.....	1014	June 18, 1913	29 00
Pausch Bros. Oyster Co.....	Sev.	June 18, 1913	15 63
Chas. H. Zorn.....	308	June 19, 1913	1 00
Geo. M. Still.....	1021	July 3, 1913	59 40

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RENTS COLLECTED DURING THE FISCAL YEAR FOR LEASES THAT FALL DUE AT IRREGULAR PERIODS EXTENDING TO CORRESPONDING DATES IN 1914 — (*Concluded*)

Name	Lot	Date	Amount
Pausch Bros. Oyster Co	1018	July 3, 1913	$151 00
Pausch Bros. Oyster Co	1019	July 3, 1913	92 60
Pausch Bros. Oyster Co	1020	July 3, 1913	183 60
New York Oyster Co	5	July 8, 1913	568 00
W. H. Lockwood	920	July 16, 1913	14 40
New York Oyster Co	1022	July 24, 1913	67 80
John I. Merrell	6	July 24, 1913	9 00
John I. Merrell	919	Aug. 15, 1913	28 80
New York Oyster Co	11	Sept. 30, 1913	24 40
New York Oyster Co	8	Sept. 30, 1913	8 20
New York Oyster Co	10	Sept. 30, 1913	4 20
Azel F. Merrell	1017	Sept. 30, 1913	147 40
Azel F. Merrell	993	Sept. 30, 1913	178 80
			$3,028 93

RENTS DUE AND COLLECTED FOR CURRENT YEAR, OCTOBER 1, 1912, TO OCTOBER 1, 1913

Schedule "B"

Name	Date	Lease No.	Amount
Geo. W. Robinson	Oct. 4, 1912	1426	$6 00
Androvette & Thompson	Oct. 4, 1912	1088	18 00
Androvette & Thompson	Oct. 4, 1912	1335	40 00
Androvette & Thompson	Oct. 4, 1912	1336	46 40
E. M. Gunn	Oct. 4, 1912	556	2 60
Jesse V. Golden	Oct. 5, 1912	1365	4 40
Jacob Brady	Oct. 5, 1912	745	6 90
D. & H. Oyster Co	Oct. 7, 1912	736	21 50
John T. Bird	Oct. 8, 1912	551	6 15
Weber & Thorn	Oct. 8, 1913	588	14 50
Chas. Weber	Oct. 8, 1912	1360	3 20
Chas. Weber	Oct. 8, 1912	1362	1 20
Howard Gould	Oct. 9, 1912	624	26 50
Howard Gould	Oct. 9, 1912	625	6 40
Chas. Olson	Oct. 9, 1912	1361	4 40
Polworth & Elsworth	Oct. 10, 1912	292	38
Polworth & Elsworth	Oct. 10, 1912	300	80
Polworth & Elsworth	Oct. 10, 1912	586	3 13
Polworth & Elsworth	Oct. 10, 1912	644	55
Polworth & Elsworth	Oct. 10, 1912	645	2 30
Polworth & Elsworth	Oct. 10, 1912	725	4 50
Polworth & Elsworth	Oct. 10, 1912	724	13 50
Timothy T. Mott	Oct. 10, 1912	1355	2 40
Josiah Thompson	Oct. 10, 1912	703	1 10
Josiah Thompson	Oct. 10, 1912	704	35
Josiah Thompson	Oct. 10, 1912	551	4 55
Josiah Thompson	Oct. 10, 1912	1367	10 40
Daniel Burbank	Oct. 11, 1912	1084	39 60
William Ruddick	Oct. 16, 1912	1157	1 50
New York Oyster Co	Oct. 18, 1912	293	90
New York Oyster Co	Oct. 18, 1912	301	3 96
New York Oyster Co	Oct. 18, 1912	545	12.45

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RENTS DUE AND COLLECTED FOR CURRENT YEAR — (*Continued*)

Name	Date	Lease No.	Amount
New York Oyster Co	Oct. 18, 1912	587	$2 80
New York Oyster Co	Oct. 18, 1912	680	1 20
New York Oyster Co	Oct. 18, 1912	681	3 45
New York Oyster Co	Oct. 18, 1912	682	12 55
New York Oyster Co	Oct. 18, 1912	694	10 70
New York Oyster Co	Oct. 18, 1912	695	173 90
New York Oyster Co	Oct. 18, 1912	705	75
New York Oyster Co	Oct. 18, 1912	706	23 90
New York Oyster Co	Oct. 18, 1912	707	2 50
New York Oyster Co	Oct. 18, 1912	709	25
New York Oyster Co	Oct. 18, 1912	714	20 10
New York Oyster Co	Oct. 18, 1912	717	7 40
New York Oyster Co	Oct. 18, 1912	726	2 10
New York Oyster Co	Oct. 18, 1912	727	40
New York Oyster Co	Oct. 18, 1912	1164	135 20
New York Oyster Co	Oct. 18, 1912	1165	13 20
New York Oyster Co	Oct. 18, 1912	1166	334 00
New York Oyster Co	Oct. 18, 1912	1321	64 00
New York Oyster Co	Oct. 18, 1912	1384	17 20
New York Oyster Co	Oct. 18, 1912	1421	200 00
Polworth & Elsworth	Oct. 18, 1912	1432	22 80
Polworth & Elsworth	Oct. 18, 1912	1433	91 60
Lars Larson	Oct. 18, 1912	1356	1 20
Lars Larson	Oct. 18, 1912	1357	4 00
Lars Larson	Oct. 18, 1912	1358	2 40
P. Wm. Von Ahnen	Oct. 21, 1912	364	50
P. Wm. Von Ahnen	Oct. 21, 1912	513	60
P. Wm. Von Ahnen	Oct. 21, 1912	1067	2 00
P. Wm. Von Ahnen	Oct. 21, 1912	1068	21 20
P. Wm. Von Ahnen	Oct. 21, 1912	1069	16 40
Anna Von Ahnen	Oct. 21, 1912	1066	9 60
Wm. R. Schenck	Oct. 21, 1912	514	6 45
Est. of Herman Von Ahnen	Oct. 21, 1912	1065	12 80
Est. of Herman Von Ahnen	Oct. 21, 1912	1398	22 80
Est. of Herman Von Ahnen	Oct. 21, 1912	1399	5 20
Est. of Herman Von Ahnen	Oct. 21, 1912	1400	6 00
Est. of Herman Von Ahnen	Oct. 21, 1912	1401	8 00
Maj. G. Abrams	Oct. 21, 1912	1151	1 20
Carl Peers	Oct. 21, 1912	323	1 63
Carl Peers	Oct. 21, 1912	1008	7 60
Carl Peers	Oct. 21, 1912	1009	5 60
Wm. C. Baldwin	Oct. 21, 1912	1318	10 80
John C. Allen	Oct. 22, 1912	557	1 45
John C. Allen	Oct. 22, 1912	702	5 50
John C. Allen	Oct. 22, 1912	704	1 45
John Bell	Oct. 22, 1912	772	1 60
John Bell	Oct. 22, 1912	776	2 30
Sealshipt Oyster System	Oct. 22, 1912	303	4 02
Sealshipt Oyster System	Oct. 22, 1912	546	10 96
Sealshipt Oyster System	Oct. 22, 1912	716	9 10
Sealshipt Oyster System	Oct. 22, 1912	720	63 90
Sealshipt Oyster System	Oct. 22, 1912	1092	7 20
Sealshipt Oyster System	Oct. 22, 1912	1110	130 00
Sealshipt Oyster System	Oct. 22, 1912	1421	85 20
Wm. J. McGrory	Oct. 22, 1912	801	10 30
Arthur Johnson	Oct. 22, 1912	597	1 00
F. F. Downs	Oct. 26, 1912	1328	80 00
F. F. Downs	Oct. 26, 1912	1329	120 00
John I. Merrell	Oct. 28, 1912	1434	42 80

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RENTS DUE AND COLLECTED FOR CURRENT YEAR — (*Continued*)

Name	Date	Lease No.	Amount
Elmer I. Palmer	Oct. 29, 1912	692	$1 15
Elmer I. Palmer	Oct. 29, 1912	700	15 63
Elmer I. Palmer	Oct. 29, 1912	732	8 20
Elmer I. Palmer	Oct. 29, 1912	733	3 75
Elmer I. Palmer	Oct. 29, 1912	739	8 00
Richard Johnson	Oct. 29, 1912	1011	6 40
Richard Johnson	Oct. 29, 1912	1012	3 60
Mary Johnson	Oct. 29, 1912	1013	6 00
C. Josephine Biggs	Oct. 29, 1912	1014	6 00
C. Josephine Biggs	Oct. 29, 1912	1015	8 00
C. Josephine Biggs	Oct. 29, 1912	1016	14 40
C. Josephine Biggs	Oct. 29, 1912	1017	3 20
C. Josephine Biggs	Oct. 29, 1912	1021	1 20
A. L. Field	Nov. 2, 1912	1083	8 80
N. S. Ackerly & Son Co	Nov. 2, 1912	1383	300 00
N. S. Ackerly & Son Co	Nov. 2, 1912	1410	200 00
Weber & Degenhardt	Nov. 2, 1912	1364	44 00
New York Oyster Co	Nov. 8, 1912	1436	88 40
New York Oyster Co	Nov. 8, 1912	1437	25 60
E. H. Mackey	Nov. 8, 1912	702	6 30
E. H. Mackey	Nov. 8, 1912	553	6 75
E. H. Mackey	Nov 8, 1912	557	8 50
Alfred Jones	Nov. 8, 1912	552	6 25
Lucius C. Jones	Nov. 8, 1912	589	6 30
H. E. Mackey	Nov. 8, 1912	553	3 52
Chas. Cowens	Nov. 8, 1912	553-D	3 95
Henry Stubbs	Nov. 8, 1912	553-A	6 25
Henry Stubbs	Nov. 8, 1912	554	2 00
Stubbs & Allen	Nov. 8, 1912	553-F	4 20
Sealshipt Oyster System	Nov. 18, 1912	736	22 17
Sealshipt Oyster System	Nov. 18, 1912	1156	120 00
Loundes, Mills & Ockers	Nov. 18, 1912	1363	2 00
Mills & Ronik	Nov. 18, 1912	736	64 50
Loundes, Mills & Thorn	Nov. 20, 1912	1350	21 20
Loundes, Mills & Thorn	Nov. 20, 1912	1351	8 00
Loundes, Mills & Thorn	Nov. 20, 1912	1352	44 40
Loundes, Mills & Thorn	Nov. 20, 1912	1353	8 80
Mills & Loundes	Nov. 20, 1912	553-B	6 10
Mills & Loundes	Nov. 20, 1912	630	10 15
Mills & Loundes	Nov. 20, 1912	1429	239 20
Wm. J. Mills	Nov. 20, 1912	1109	220 00
Wm. J. Mills	Nov. 20, 1912	1115	40 00
Wm. J. Mills	Nov. 20, 1912	1403	2 00
Wm. J. Mills	Nov. 20, 1912	1348	80 00
Wm. J. Mills	Nov. 20, 1912	1406	588 00
Bayles, Bumstead & Fletcher	Nov. 29, 1912	699	45 05
Matinecock Oyster Co	Nov. 29, 1912	629	9 60
Matinecock Oyster Co	Nov. 29, 1912	636	6 05
Matinecock Oyster Co	Nov. 29, 1912	1070	400 00
Bayles & Thorn	Nov. 29, 1912	555	15 70
Bayles & Thorn	Nov. 29, 1912	702	10 95
Bayles & Thorn	Nov. 29, 1912	1348	57 20
Geo. M. Still	Dec. 19, 1912	685	1 35
Geo. M. Still	Dec. 19, 1912	686	35
Geo. M. Still	Dec. 19, 1912	1330	13 60
New York Oyster Co	Dec. 19, 1912	1438	203 60
New York Oyster Co	Dec. 19, 1912	580	3 35
Alexander Frazer Co	Dec. 21, 1912	1439	20 00
John M. Benner	Feb. 8, 1913	628	2 35
John M. Benner	Feb. 8, 1913	632	6 45

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RENTS DUE AND COLLECTED FOR CURRENT YEAR — (*Concluded*)

Name	Date	Lease No.	Amount
John M. Benner	Feb. 8, 1913	633	$13 50
John M. Benner	Feb. 8, 1913	634	7 60
John M. Benner	Feb. 8, 1913	635	60 60
John M. Benner	Feb. 8, 1913	637	23 85
John M. Benner	Feb. 8, 1913	638	16 35
John M. Benner	Feb. 8, 1913	639	4 40
John M. Benner	Feb. 8, 1913	712	54 05
John M. Benner	Feb. 8, 1913	713	29 55
John M. Benner	Feb. 8, 1913	720	41 10
John M. Benner	Feb. 8, 1913	721	45 00
John M. Benner	Feb. 8, 1913	734	19 25
John M. Benner	Feb. 8, 1913	1071	240 40
John M. Benner	Feb. 8, 1913	1094	840 00
John M. Benner	Feb. 8, 1913	1116	300 00
John M. Benner	Feb. 8, 1913	1117	685 20
W. H. Lockwood	Feb. 8, 1913	295	1 53
W. H. Lockwood	Feb. 8, 1913	538	95
W. H. Lockwood	Feb. 8, 1913	543	38 80
W. H. Lockwood	Feb. 8, 1912	683	9 00
W. H. Lockwood	Feb. 8, 1913	684	9 85
Pausch Bros. Oyster Co.	Feb. 8, 1913	640	29 15
Standard Oyster Co.	Feb. 8, 1913	1341	10 00
Standard Oyster Co.	Feb. 8, 1913	1342	12 60
Standard Oyster Co.	Feb. 8, 1913	1343	8 40
Standard Oyster Co.	Feb. 8, 1913	1344	8 60
Henry S. Marshall	Feb. 18, 1913	728	75
Henry S. Marshall	Feb. 18, 1913	730	75
Cornelius Leary	Mar. 11, 1913	1359	4 40
S. A. Still	Mar. 13, 1913	1411	100 00
Richard M. Ellard	Mar. 17, 1913	1349	20 00
Richard M. Ellard	Mar. 17, 1913	1346	9 60
Lewis Bros.	Mar. 27, 1913	741	5 15
Lewis Bros.	Mar. 27, 1913	742	21 05
Sofield & Frazer	Mar. 29, 1913	1409	208 80
Alexander Frazer Co.	Mar. 29, 1913	1408	164 40
W. H. Houghwout	Mar. 29, 1913	1089	8 40
W. H. Houghwout	Mar. 29, 1913	1333	1 25
Alexander C. Frazer	Mar. 29, 1913	649	25
R. R. Mott	April 4, 1913	1354	2 80
Adolf Johnson	April 28, 1913	736	22 18
R. W. La Forge	April 28, 1913	1322	20 00
R. W. La Forge	April 28, 1913	708	45
R. W. La Forge	April 28, 1913	708	25
R. W. & W. W. La Forge	April 28, 1913	1159	2 40
Robert Lee	April 28, 1913	750	2 30
Frazer & Houghwout	May 8, 1913	1444	60 00
Alexander Frazer Co.	May 10, 1913	1445	304 20
J. E. Still	May 13, 1913	1447	100 00
Geo. W. Conklin	June 2, 1913	1414	186 00
Oyster Bay Oyster Co.	July 24, 1913	1108	290 00
Oyster Bay Oyster Co.	July 24, 1913	1109	260 00
James A. Deveaugh	Aug. 5, 1913	740	3 10
John I. Merrell	Aug. 19, 1913	294	2 85
			$9,566 75

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RENTS COLLECTED AFTER OCTOBER 1, 1912, AND DUE DURING FISCAL YEAR 1911–1912

Schedule "C"

Name	Date	Lease No.	Amount
Erastus W. Seaman	Oct. 2, 1912	280	$3 80
Stephen Collins	Oct. 2, 1912	755	1 60
Stephen Collins	Oct. 2, 1912	756	1 80
Stephen Collins	Oct. 2, 1912	757	50
Ernest F. Colon	Oct. 7, 1912	690	2 30
Ernest F. Colon	Oct. 7, 1912	691	40
James A. Bailey	Oct. 8, 1912	667	8 30
John H. Schmeelk, No. 1	Oct. 10, 1912	326	1 10
John H. Schmeelk, No. 1	Oct. 10, 1912	1323	7 20
John H. Schmeelk, No. 1	Oct. 10, 1912	1324	8 00
William F. Schmeelk	Oct. 10, 1912	1402	5 06
H. W. Schmeelk Oyster Co	Oct. 14, 1912	314	3 30
H. W. Schmeelk Oyster Co	Oct. 14, 1912	613	2 75
H. W. Schmeelk Oyster Co	Oct. 14, 1912	617	95
H. W. Schmeelk Oyster Co	Oct. 14, 1912	621	1 40
H. W. Schmeelk Oyster Co	Oct. 14, 1912	620	2 85
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1175	10 00
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1176	10 80
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1177	4 80
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1178	6 40
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1179	54 40
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1180	7 60
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1181	10 00
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1182	17 60
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1183	10 40
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1184	8 00
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1185	6 00
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1186	46 40
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1187	10 80
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1188	6 00
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1189	9 60
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1190	3 20
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1191	10 40
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1191	16 00
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1193	13 20
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1194	3 60
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1195	25 20
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1196	2 40
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1197	9 60
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1198	16 00
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1199	3 20
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1200	28 00
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1201	2 80
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1202	6 80
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1203	13 20
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1096	4 00
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1081	12 00
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1039	80
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1204	5 60
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1205	8 80
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1206	12 00
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1207	6 40
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1208	5 60
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1209	26 40
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1210	10 40
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1212	25 20

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RENTS COLLECTED AFTER OCTOBER 1, ETC.— (*Continued*)

Name	Date	Lease No.	Amount
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1213	$4 80
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1214	8 40
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1215	3 60
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1216	13 20
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1097	10 00
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1073	12 00
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1325	8 00
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1326	6 40
H. W. Schmeelk Oyster Co	Oct. 14, 1912	1327	11 60
R. W. & W. W. La Forge	Oct. 16, 1912	1159	2 40
Richard W. La Forge	Oct. 16, 1912	708	25
Richard W. La Forge	Oct. 16, 1912	1322	11 30
Alexander Frazer Co	Oct. 28, 1912	1435	60 00
David B. Colon	Oct. 31, 1912	689	4 80
Glenwood Oyster Co	Nov. 4, 1912	547	39 85
Glenwood Oyster Co	Nov. 4, 1912	631	7 35
Glenwood Oyster Co	Nov. 4, 1912	673	3 15
Glenwood Oyster Co	Nov. 4, 1912	715	3 95
Rudolph Merrell	Nov. 4, 1912	1107	216 00
Merrell & Bayles	Nov. 4, 1912	1349	11 20
Merrell & Bayles	Nov. 4, 1912	1366	38 00
Azel F. Merrell	Nov. 19, 1912	1082	2 00
Azel F. Merrell	Nov. 19, 1912	1104	67 20
Azel F. Merrell	Nov. 19, 1912	1105	318 80
Azel F. Merrell	Nov. 19, 1912	1106	252 00
Azel F. Merrell	Nov. 19, 1912	1316	114 00
Azel F. Merrell	Nov. 19, 1912	1340	91 60
Mattituck Oyster Co	Nov. 25, 1912	1093	560 00
Mattituck Oyster Co	Nov. 25, 1912	1094	240 00
Mattituck Oyster Co	Nov. 25, 1912	1116	120 00
Mattituck Oyster Co	Nov. 25, 1912	1117	34 80
Mattituck Oyster Co	Nov. 25, 1912	1161	90 00
Mattituck Oyster Co	Nov. 25, 1912	1338	70 00
Oyster Bay Oyster Co	Dec. 25, 1912	1108	290 00
Oyster Bay Oyster Co	Dec. 25, 1912	1109	260 00
New York Oyster Co	Dec. 20, 1912	1438	203 60
William T. Schmeelk	Dec. 23, 1912	1302	18 40
Alexander Fraser Co	Dec. 23, 1912	1435	60 00
Rockaway Oyster Co	Jan. 6, 1913	228	1 17
Joseph Flaherty	Jan. 6, 1913	230	68
James H. Abrams	Jan. 6, 1913	244	46
John H. Abrams	Jan. 6, 1913	336	35
John H. Abrams	Jan. 6, 1913	337	90
Emma W. Abrams	Jan. 6, 1913	1131	10
Emma W. Abrams	Jan. 6, 1913	1132	11
George A. Schmeelk	Jan. 6, 1913	1217	11 86
George A. Schmeelk	Jan. 6, 1913	1218	2 41
George A. Schmeelk	Jan. 6, 1913	1219	2 34
J. G. H. Bedell	Feb. 6, 1913	1394	7 02
Bedell Amberman	Feb. 6, 1913	1393	8 08
Fred. A. Brimlow	Mar. 10, 1913	365	85
Chas. L. Pearsall	Mar. 13, 1913	1267	4 05
Chas. L. Pearsall	Mar. 13, 1913	1268	16 60
Walter C. Denton	Mar. 21, 1913	311	3 73
Walter C. Denton	Mar. 21, 1913	357	1 10
Azel F. Merrell	April 30, 1913	1221	6 02
Azel F. Merrell	April 30, 1913	1222	3 12
Azel F. Merrell	April 30, 1913	1223	4 24
Azel F. Merrell	April 30, 1913	1224	10 50

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RENTS COLLECTED AFTER OCTOBER 1, ETC.— (*Concluded*)

Name	Date	Lease No.	Amount
Axel F. Merrell	April 30, 1913	1225	$4 69
Axel F. Merrell	April 30, 1913	1226	8 04
Axel F. Merrell	April 30, 1912	1227	2 23
Axel F. Merrell	April 30, 1913	1228	1 79
Axel F. Merrell	April 30, 1912	1229	4 69
Axel F. Merrell	April 30, 1913	1230	7 89
Thos. Hassatt, Jr.	May 5, 1913	1441	4 80
Christian Walle	July 8, 1913	1449	8 40
Henry S. Marshall	July 9, 1913	1448	4 40
			$3,942 23

SCHEDULE OF RENTALS

	Amount
Schedule A	$3,028 93
Schedule B	9,566 75
Schedule C	3,942 23
Total	$16,537 91

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TAXES, PENALTY AND INTEREST COLLECTED FROM OCTOBER 1, 1912, TO SEPTEMBER 30, 1913

NAME	Date	Lot	Tax	Penalty	Interest
George Sharett	Oct. 28, 1912	238-B	$2 50	.....	$0 36
Thomas W. Holbert	Nov. 26, 1912	603	63	$0 13	10
Sterling Oyster Co	Dec. 26, 1912	Several	.....	.....	1 70
Hiram Cadmus	Jan. 30, 1913	461	1 35	.....	.....
J. E. Watts	Jan. 30, 1913	460	1 30	.....	.....
Elisabeth Watts	Jan. 30, 1913	456	1 70	.....	.....
George M. Still	Feb. 4, 1913	284	1 65	.....	.....
George M. Still	Feb. 4, 1913	171	3 20	.....	.....
George M. Still	Feb. 4, 1913	324	80	.....	.....
George M. Still	Feb. 4, 1913	660	53	.....	.....
George M. Still	Feb. 4, 1913	521	67	.....	.....
George M. Still	Feb. 4, 1913	442	55	.....	.....
George M. Still	Feb. 4, 1913	411	1 35	.....	.....
George M. Still	Feb. 4, 1913	401	75	.....	.....
George M. Still	Feb. 4, 1913	805	2 65	.....	.....
George M. Still	Feb. 4, 1913	253	65	.....	.....
George M. Still	Feb. 4, 1913	440	35	.....	.....
George M. Still	Feb. 4, 1913	823	60	.....	.....
George M. Still	Feb. 4, 1913	946	1 35	.....	.....
George M. Still	Feb. 4, 1913	947	35	.....	.....
George M. Still	Feb. 4, 1913	849	1 70	.....	.....
A. L. Field	Feb. 4, 1913	70	2 95	.....	.....
A. L. Field	Feb. 4, 1913	308	1 10	81	.....
E. Otis Hovey	Feb. 4, 1913	600	10 70	.....	.....
E. Otis Hovey	Feb. 4, 1913	587	2 75	.....	.....
E. Otis Hovey	Feb. 4, 1913	617	1 40	.....	.....
E. Otis Hovey	Feb. 4, 1913	198	10 40	.....	.....
E. Otis Hovey	Feb. 4, 1913	227	75	.....	.....
E. Otis Hovey	Feb. 4, 1913	301	3 70	.....	.....
E. Otis Hovey	Feb. 4, 1913	618	4 25	.....	.....
Jones & Burbank	Feb. 4, 1913	502	3 60	.....	.....
Jones & Burbank	Feb. 4, 1913	500	10 00	.....	.....
Jones & Burbank	Feb. 4, 1913	510	83	.....	.....
Jones & Burbank	Feb. 4, 1913	695	4 90	.....	.....
George S. Burbank	Feb. 4, 1913	858	3 00	.....	.....
Northport Oyster Co	Feb. 4, 1913	Several	16 25	.....	.....
George H. Mott	Feb. 4, 1913	403	10	.....	.....
George H. Mott	Feb. 4, 1913	408	2 20	.....	.....
George H. Mott	Feb. 4, 1913	424	60	.....	.....
George H. Mott	Feb. 4, 1913	430	5 40	.....	.....
George H. Mott	Feb. 4, 1913	395	50	.....	.....
George H. Mott	Feb. 4, 1913	507	85	.....	.....
Annie Von Ahnen	Feb. 4, 1913	40	1 20	.....	.....
W. H. Dickens	Feb. 4, 1913	250	70	.....	.....
George A. Carman	Feb. 4, 1913	118	85	38	.....
George A. Carman	Feb. 4, 1913	218	1 05	.....	.....
Jacob Frederick	Feb. 4, 1913	566	5 55	.....	.....
Herman M. Schmeelk	Feb. 4, 1913	411	7 45	.....	.....
Herman M. Schmeelk	Feb. 4, 1913	412	3 45	.....	.....
Herman M. Schmeelk	Feb. 4, 1913	468	1 35	.....	.....
Herman M. Schmeelk	Feb. 4, 1913	509	20 20	.....	.....
Herman M. Schmeelk	Feb. 4, 1913	541	6 70	.....	.....
DeHart & Housman	Feb. 4, 1913	335	33	07	.....
Henry DeHart	Feb. 4, 1913	1	1 95	.....	.....
Henry DeHart	Feb. 4, 1913	429	9 70	.....	.....
Henry DeHart	Feb. 4, 1913	427	4 00	.....	.....
Henry DeHart	Feb. 4, 1913	419	4 03	.....	.....
Henry DeHart	Feb. 4, 1913	421	1 77	.....	.....
Henry DeHart	Feb. 4, 1913	866	3 15	.....	.....
Richard Johnson	Feb. 4, 1913	91	80	.....	.....
Richard Johnson	Feb. 4, 1913	92	45	.....	.....
Mary Johnson	Feb. 4, 1913	96	75	.....	.....
Charles Bedell	Feb. 4, 1913	183	50	.....	.....
Charles Bedell	Feb. 4, 1913	821	45	.....	.....
Charles Bedell	Feb. 4, 1913	820	80	.....	.....
Charles Bedell	Feb. 4, 1913	770	35	.....	.....
Adeline Bedell	Feb. 4, 1913	185	30	.....	.....
Suwassett Oyster Co	Feb. 4, 1913	72	24 80	.....	.....
Suwassett Oyster Co	Feb. 4, 1913	101	41 85	.....	.....
Suwassett Oyster Co	Feb. 4, 1913	100	26 00	.....	.....
Suwassett Oyster Co	Feb. 4, 1913	102	50 00	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
George W. Chauncey	Feb. 4, 1913	Several	$25 00	.....	.....
Jarvis Hicks	Feb. 4, 1913	629	10	.....	.....
Jarvis Hicks	Feb. 4, 1913	630	30	.....	.....
Richard M. Ellard	Feb. 5, 1913	318	2 50	.....	.....
Richard M. Ellard	Feb. 5, 1913	319	1 20	.....	.....
Hannah M. Starkey	Feb. 5, 1913	462	55	.....	.....
W. A. Winant	Feb. 5, 1913	266	1 60	.....	.....
George S. Monroe	Feb. 5, 1913	474	3 50	.....	.....
William Buchanan	Feb. 5, 1913	42	1 18	.....	.....
William Buchanan	Feb. 5, 1912	690	63	$0 37	.....
William J. Hewlett	Feb. 5, 1913	539	2 10	.....	.....
Benjamin Merritt	Feb. 5, 1913	301	20	.....	.....
Benjamin Merritt	Feb. 5, 1913	302	25	.....	.....
Benjamin Merritt	Feb. 5, 1913	303	35	.....	.....
Benjamin Merritt	Feb. 5, 1913	325	2 00	56	.....
Major G. Abrams	Feb. 5, 1913	628	15	.....	.....
Henry Borwegen	Feb. 5, 1913	310	4 25	.....	.....
Henry Borwegen	Feb. 5, 1913	50	40	.....	.....
Henry Borwegen	Feb. 5, 1913	48	70	1 07	.....
William Remsen	Feb. 5, 1913	472	7 40	.....	.....
Estate Jacob Bumstead	Feb. 5, 1913	66	4 50	90	.....
Richard Biggs	Feb. 5, 1913	627	80	.....	.....
J. J. Manee	Feb. 5, 1913	658	10	.....	.....
J. J. Manee	Feb. 5, 1913	64	1 00	.....	.....
J. W. Cole	Feb. 5, 1913	469	28	.....	.....
J. W. Cole	Feb. 5, 1913	507	1 22	30	.....
Elmer T. Butler	Feb. 6, 1913	78	6 80	.....	.....
Elmer T. Butler	Feb. 6, 1913	31	15	.....	.....
Elmer T. Butler	Feb. 6, 1913	392	5 13	.....	.....
Elmer T. Butler	Feb. 6, 1913	553	57	.....	.....
Elmer T. Butler	Feb. 6, 1913	388	60	.....	.....
Elmer T. Butler	Feb. 6, 1913	283	55	.....	.....
Elmer T. Butler	Feb. 6, 1913	871	65	.....	.....
Elmer T. Butler	Feb. 6, 1913	839	1 05	.....	.....
John T. Bird	Feb. 6, 1913	91-D	6 15	.....	.....
Androvette & Thompson	Feb. 6, 1913	392	2 75	.....	.....
Androvette & Thompson	Feb. 6, 1913	148	90	.....	.....
Androvette & Thompson	Feb. 6, 1913	339	2 07	.....	.....
Androvette & Thompson	Feb. 6, 1913	337	1 00	.....	.....
Androvette & Thompson	Feb. 6, 1913	568	53	.....	.....
Androvette & Thompson	Feb. 6, 1913	236	7 98	.....	.....
Androvette & Thompson	Feb. 6, 1913	798	2 55	.....	.....
Androvette & Thompson	Feb. 6, 1913	807	65	.....	.....
Androvette & Thompson	Feb. 6, 1913	570	65	.....	.....
Androvette & Thompson	Feb. 6, 1913	980	5 80	.....	.....
Androvette & Thompson	Feb. 6, 1913	979	5 00	.....	.....
Androvette & Thompson	Feb. 6, 1913	900	2 25	.....	.....
Charles Olson	Feb. 6, 1913	9	55	.....	.....
Lars Larsen	Feb. 6, 1913	11	50	.....	.....
Lars Larsen	Feb. 6, 1913	13	30	.....	.....
George W. Sanbeg	Feb. 6, 1913	522	1 05	.....	.....
George W. Sanbeg	Feb. 6, 1913	948	3 20	85	.....
William H. Watts	Feb. 6, 1913	427	55	.....	.....
William H. Watts	Feb. 6, 1913	445	70	.....	.....
Bedell & Amberman	Feb. 6, 1913	505	1 55	31	.....
Harry C. Johnson	Feb. 6, 1913	620	40	.....	.....
Harry C. Johnson	Feb. 6, 1913	439	75	.....	.....
Harry C. Johnson	Feb. 6, 1913	361	50	.....	.....
Harry C. Johnson	Feb. 6, 1913	431	50	43	.....
George H. Johnson	Feb. 6, 1913	94	45	.....	.....
Jane Johnson	Feb. 6, 1913	132	1 25	.....	.....
H. L. C. Wenk	Feb. 6, 1913	567	2 40	.....	.....
H. L. C. Wenk	Feb. 6, 1913	568	2 50	.....	.....
H. L. C. Wenk	Feb. 6, 1913	569	80	.....	.....
Weber & Degenhart	Feb. 6, 1913	317	5 50	1 10	.....
Charles Weber	Feb. 6, 1913	105	7 25	.....	.....
Charles Weber	Feb. 6, 1913	10	15	.....	.....
Charles Weber	Feb. 6, 1913	14	40	1 56	.....
Arthur Johnson	Feb. 7, 1913	558	1 00	.....	.....
J. G. H. Bedell	Feb 7, 1913	455	1 35	27	.....
William B. Dooley	Feb 7, 1913	463	50	.....	.....
William B. Dooley	Feb 7, 1913	457	1 00	.....	.....
Daniel Burbank	Feb 8, 1913	288	3 85	.....	.....
Daniel Burbank	Feb. 8, 1913	380	3 00	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
Daniel Burbank	Feb. 8, 1913	386	$1 33	.....	.....
Daniel Burbank	Feb. 8, 1913	696	4 97	.....	.....
Daniel Burbank	Feb. 8, 1913	862	6 15	.....	.....
Daniel Burbank	Feb. 8, 1913	382	4 20	.....	.....
Daniel Burbank	Feb. 8, 1913	890	4 95	.....	.....
John C. Allen	Feb. 8, 1913	Section B	5 50	.....	.....
John C. Allen	Feb. 8, 1913	123	1 45	.....	.....
John C. Allen	Feb. 8, 1913	90	1 45	.....	.....
Loundes, Mills & Ockers	Feb. 8, 1913	15	25	.....	.....
Loundes, Mills & Thorn	Feb. 8, 1913	16	2 65	.....	.....
Loundes, Mills & Thorn	Feb. 8, 1913	2	1 00	.....	.....
Loundes, Mills & Thorn	Feb. 8, 1913	18	5 55	.....	.....
Loundes, Mills & Thorn	Feb. 8, 1913	1	1 10	.....	.....
Loundes & Mills	Feb. 8, 1913	93-B	6 10	.....	.....
Loundes & Mills	Feb. 8, 1913	106	10 15	.....	.....
Loundes & Mills	Feb. 8, 1913	79	29 90	.....	.....
Mills & Ronik	Feb. 8, 1913	Plot A	64 50	.....	.....
W. J. Mills	Feb. 8, 1913	314	5 00	.....	.....
W. J. Mills	Feb 8, 1913	Several	27 50	.....	.....
W. J. Mills	Feb 8, 1913	4	25	.....	.....
W. J. Mills	Feb. 8, 1913	Several	73 50	.....	.....
W. J. Mills	Feb. 8, 1913	321	10 00	.....	.....
Henry Warren	Feb. 8, 1913	544	2 35	.....	.....
N. Y. Fishing Club	Feb. 8, 1913	67	1 33	$0 27	.....
W. Henry Dickens	Feb. 10, 1913	61	1 95	.....	.....
W. Henry Dickens	Feb. 10, 1913	213	1 25	.....	.....
J. H. Elsworth	Feb. 10, 1913	130	1 80	.....	.....
Thomas Silk	Feb. 10, 1913	613	23	05	.....
Elsworth & Polworth	Feb. 10, 1913	376	1 35	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	623	97	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	621	1 05	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	299	95	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	617	2 92	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	645	1 45	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	632	6 17	.....	.....
J & J. W. Elsworth Co	Feb. 10, 1913	619	2 95	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	497	85	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	495	3 23	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	496	1 52	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	443	1 10	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	441	2 50	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	148	16 97	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	197	2 50	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	701	1 67	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	721	1 90	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	665	1 23	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	742	38	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	855	4 42	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	648	1 40	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	650	2 98	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	124	45	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	432	85	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	360	1 63	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	362	28	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	786	45	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	305	30	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	680	33	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	501	2 15	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	758	78	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	809	35	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	810	35	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	202	1 15	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	367	1 07	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	505	1 52	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	172	2 50	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	487	5 30	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	692	4 25	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	87	68	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	785	9 45	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	556	50	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	234	50	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	602	43	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	631	38	.....	.....
J. & J. W. Elsworth Co	Feb. 10, 1913	208	40	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
J. & J. W. Elsworth Co.	Feb. 10, 1913	625	$0 65	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	633	50	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	269	85	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	629	35	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	273	70	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	618	42	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	346	2 93	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	557	3 47	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	559	1 35	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	534	78	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	182	60	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	532	54	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	184	70	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	634	63	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	636	1 70	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	638	1 32	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	165	7 05	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	194	1 50	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	630	43	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	365	1 92	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	373	1 15	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	363	2 00	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	371	1 27	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	369	3 65	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	831	80	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	555	2 30	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	254	2 78	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	637	43	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	842	2 05	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	166	1 48	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	249	1 25	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	301	90	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	307	1 40	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	788	45	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	105	1 25	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	313	3 52	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	293	70	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	26	25	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	142-A	5 52	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	132	3 15	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	303	55	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	393	85	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	782	45	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	173	19 00	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	517	65	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	615	3 73	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	811	1 20	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	439	1 00	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	554	1 52	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	215	3 19	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	775	60	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	81	32	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	80	60	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	86	1 08	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	79	32	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	455-A	23	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	285	45	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	84	1 95	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	85	35	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	295	1 40	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	673	45	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	169	40	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	111	1 95	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	82	32	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	297	1 02	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	639	1 45	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	667	85	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	672	28	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	755	40	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	643	1 70	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	600	95	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	729	40	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	83	70	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	787	2 50	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
J. & J. W. Elsworth Co.	Feb. 10, 1913	647	$1 18	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	730	60	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	641	1 05	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	575	2 40	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	364	25	.....	.....
J. & J. W. Elsworth Co.	Feb. 10, 1913	784	40	.....	.....
Polworth & Elsworth	Feb. 10, 1913	245	90	.....	.....
Polworth & Elsworth	Feb. 10, 1913	157	2 07	.....	.....
Polworth & Elsworth	Feb. 10, 1913	241	3 00	.....	.....
Polworth & Elsworth	Feb. 10, 1913	243	1 75	.....	.....
Polworth & Elsworth	Feb. 10, 1913	247	1 63	.....	.....
Polworth & Elsworth	Feb. 10, 1913	233	2 75	.....	.....
Polworth & Elsworth	Feb. 10, 1913	436	1 07	.....	.....
Polworth & Elsworth	Feb. 10, 1913	511	3 37	.....	.....
Polworth & Elsworth	Feb. 10, 1913	513	58	.....	.....
Polworth & Elsworth	Feb. 10, 1913	438	2 00	.....	.....
Polworth & Elsworth	Feb. 10, 1913	235	1 60	.....	.....
Polworth & Elsworth	Feb. 10, 1913	237	3 60	.....	.....
Polworth & Elsworth	Feb. 10, 1913	239	5 12	.....	.....
Polworth & Elsworth	Feb. 10, 1913	251	65	.....	.....
Polworth & Elsworth	Feb. 10, 1913	558	1 38	.....	.....
Polworth & Elsworth	Feb. 10, 1913	628	27	.....	.....
Polworth & Elsworth	Feb. 10, 1913	956	50	.....	.....
Polworth & Elsworth	Feb. 10, 1913	133	48	.....	.....
Polworth & Elsworth	Feb. 10, 1913	372	50	.....	.....
Polworth & Elsworth	Feb. 10, 1913	657	45	.....	.....
Polworth & Elsworth	Feb. 10, 1913	659	1 00	.....	.....
Polworth & Elsworth	Feb. 10, 1913	603	63	.....	.....
Polworth & Elsworth	Feb. 10, 1913	931	3 12	.....	.....
Polworth & Elsworth	Feb. 10, 1913	934	3 55	.....	.....
Polworth & Elsworth	Feb. 10, 1913	935	2 30	.....	.....
Polworth & Elsworth	Feb. 10, 1913	971	13 50	.....	.....
Polworth & Elsworth	Feb. 10, 1913	965	4 50	.....	.....
Polworth & Elsworth	Feb. 10, 1913	917	2 85	.....	.....
Polworth & Elsworth	Feb. 10, 1913	915	11 45	.....	.....
Fred Wagner	Feb. 10, 1913	431	88	$0 18	.....
Elizabeth Watts	Feb. 10, 1913	456	1 70	.....	.....
John E. Watts	Feb. 10, 1913	460	1 30	.....	.....
Hiram Cadmus	Feb. 10, 1913	461	1 35	.....	.....
B. F. & H. E. Bush	Feb. 10, 1913	456	40	.....	.....
B. F. & H. E. Bush	Feb. 10, 1913	468	1 33	.....	.....
B. F. & H. E. Bush	Feb. 10, 1913	467	1 04	.....	.....
B. F. & H. E. Bush	Feb. 10, 1913	481	11 75	.....	.....
B. F. & H. E. Bush	Feb. 10, 1913	861	6 30	.....	.....
W. D. Bush	Feb. 10, 1913	11	63	.....	.....
W. D. Bush	Feb. 10, 1913	457	92	31	.....
Cornelius Leary	Feb. 11, 1913	12	55	11	.....
Jesse V. Golden	Feb. 11, 1913	17	55	.....	.....
Floyd Abrams	Feb. 11, 1913	398	30	.....	.....
John Bell	Feb. 11, 1913	251	1 60	.....	.....
John Bell	Feb. 11, 1913	258	2 30	.....	.....
Charles H. Zorn	Feb. 11, 1913	308	50	10	.....
Thomas Remsen	Feb. 11, 1913	473	2 00	.....	.....
R. C. DuBois	Feb. 11, 1913	71	1 55	.....	.....
Alfred DuBois	Feb. 11, 1913	72	73	.....	.....
Alfred DuBois	Feb. 11, 1913	415	58	.....	.....
Clarence Lissenden	Feb. 11, 1913	172	1 25	25	.....
Gould J. Jennings	Feb. 11, 1913	128-A	60	.....	.....
Lars Larsen	Feb. 11, 1913	8	15	.....	.....
Pausch Bros. Oyster Co.	Feb. 11, 1913	12	53 30	.....	.....
Pausch Bros. Oyster Co.	Feb. 11, 1913	13	17 10	.....	.....
Pausch Bros. Oyster Co.	Feb. 11, 1913	Several	16 75	.....	.....
Pausch Bros. Oyster Co.	Feb. 11, 1913	Several	37 50	.....	.....
Pausch Bros. Oyster Co.	Feb. 11, 1913	Several	15 63	.....	.....
Pausch Bros. Oyster Co.	Feb. 11, 1913	Several	24 55	.....	.....
Pausch Bros. Oyster Co.	Feb. 11, 1913	107	29 15	.....	.....
Pausch Bros. Oyster Co.	Feb. 11, 1913	108	6 25	.....	.....
Pausch Bros. Oyster Co.	Feb. 11, 1913	127	4 40	.....	.....
Pausch Bros. Oyster Co.	Feb. 11, 1913	315	8 90	.....	.....
Pausch Bros. Oyster Co.	Feb. 11, 1913	977	36 00	.....	.....
E. M. Gunn	Feb. 11, 1913	96	1 30	26	.....
C. O. Sprague	Feb. 11, 1913	355	63	.....	.....
C. O. Sprague	Feb. 11, 1913	286	43	.....	.....
Bayles & Thorn	Feb. 11, 1913	95	15 70	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
Bayles & Thorn	Feb. 11, 1913	121	$10 95	.....	.....
Bayles & Thorn	Feb. 11, 1913	321	7 15	.....	.....
Bayles, Bumstead & Fletcher	Feb. 11, 1913	Several	45 05	.....	.....
Matinecock Oyster Co	Feb. 11, 1913	81	9 60	.....	.....
Matinecock Oyster Co	Feb. 11, 1913	114	6 05	.....	.....
Matinecock Oyster Co	Feb. 11, 1913	73	50 00	.....	.....
Howard Gould	Feb. 12, 1913	117	26 50	.....	.....
Howard Gould	Feb. 12, 1913	118	6 40	.....	.....
D. O. Noe & Son	Feb. 12, 1913	150	18	.....	.....
D. O. Noe & Son	Feb. 12, 1913	27	35	.....	.....
D. O. Noe & Son	Feb. 12, 1913	32	17	.....	.....
D. O. Noe & Son	Feb. 12, 1913	43	75	.....	.....
D. O. Noe & Son	Feb. 12, 1913	151	17	.....	.....
D. O. Noe & Son	Feb. 12, 1913	23	20	.....	.....
D. O. Noe & Son	Feb. 12, 1913	503	2 03	.....	.....
D. O. Noe & Son	Feb. 12, 1913	835	2 40	.....	.....
D. O. Noe & Son	Feb. 12, 1913	5	1 42	.....	.....
J. E. Noe	Feb. 12, 1913	33	23	.....	.....
J. E. Noe	Feb. 12, 1913	467	1 04	.....	.....
J. E. Noe	Feb. 12, 1913	713	50	.....	.....
George Marshall	Feb. 12, 1913	231	1 00	.....	.....
George Marshall	Feb. 12, 1913	267	1 70	$0 54	.....
Marshall & Bedell	Feb. 12, 1913	772	58	12	.....
Edward Dooley	Feb. 12, 1913	459	1 65	.....	.....
Bedell & Lang	Feb. 12, 1913	114	2 63	.....	.....
W. G. Robinson	Feb. 12, 1913	912-A	75	15	.....
Wofield & Mersereau	Feb. 13, 1913	100	50	.....	.....
Wofield & Mersereau	Feb. 13, 1913	582	90	.....	.....
Wofield & Mersereau	Feb. 13, 1913	101	70	.....	.....
Wofield & Mersereau	Feb. 13, 1913	195	50	.....	.....
Wofield & Mersereau	Feb. 13, 1913	295	70	.....	.....
Wofield & Mersereau	Feb. 13, 1913	102	35	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	516	1 80	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	347	4 95	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	487	1 95	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	480	85	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	481	80	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	564	1 30	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	84	75	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	332	1 45	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	85	45	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	80	1 10	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	79	45	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	158	1 65	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	622	2 90	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	135	1 05	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	229	2 60	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	82	1 45	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	83	1 25	.....	.....
Rockaway Oyster Co	Feb. 13, 1913	136	1 00	.....	.....
Lyman W. Bedell	Feb. 13, 1913	115	2 10	.....	.....
Lyman W. Bedell	Feb. 13, 1913	204	2 88	.....	.....
Lyman W. Bedell	Feb. 13, 1913	221	1 20	.....	.....
Lyman W. Bedell	Feb. 13, 1913	206	1 20	.....	.....
Lyman W. Bedell	Feb. 13, 1913	223	90	.....	.....
Lyman W. Bedell	Feb. 13, 1913	219	75	.....	.....
Lyman W. Bedell	Feb. 13, 1913	213	40	.....	.....
Lyman W. Bedell	Feb. 13, 1913	225	40	.....	.....
D. & H. Oyster Co	Feb. 13, 1913	Plot D	21 50	.....	.....
W P. Burbank	Feb. 13, 1913	509	98	22	.....
F. J. Lancaster	Feb. 13, 1913	584	90	.....	.....
Alexander C. Frazer	Feb. 14, 1913	21	17	.....	.....
Alexander C. Frazer	Feb. 14, 1913	939	13	.....	.....
Alexander C. Frazer	Feb. 14, 1913	994	20 65	.....	.....
Alexander C. Frazer	Feb. 14, 1913	1005	7 50	.....	.....
Frazer & Houghwout	Feb. 14, 1913	176	3 70	.....	.....
Frazer & Houghwout	Feb. 14, 1913	218	1 75	.....	.....
Frazer & Houghwout	Feb. 14, 1913	783	10 00	.....	.....
Frazer & Houghwout	Feb. 14, 1913	504	2 38	.....	.....
G. P. Wright & Son	Feb. 14, 1913	491	38	08	.....
W. H. Houghwout	Feb. 14, 1913	486	1 55	.....	.....
W. H. Houghwout	Feb. 14, 1913	512	63	.....	.....
W. H. Houghwout	Feb. 14, 1913	694	10 55	.....	.....
W. H. Houghwout	Feb. 14, 1913	899	1 05	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
W. H. Houghwout	Feb. 14, 1913	978	$1 25	.....	.....
Fletcher Decker	Feb. 14, 1913	127	63	.....	.....
Fletcher Decker	Feb. 14, 1913	128-B	70	$0 27	.....
W. W. Smith	Feb. 14, 1913	67	3 08	.....	.....
George S. Smith	Feb. 14, 1913	397	20	.....	.....
Valentine Smith	Feb. 14, 1913	365	50	.....	.....
Valentine Smith	Feb. 14, 1913	362	90	.....	.....
Henry Schlatenberg	Feb. 14, 1913	238	1 00	20	.....
Peter Miller	Feb. 14, 1913	16	1 20	.....	.....
Peter Miller	Feb. 14, 1913	1	95	.....	.....
Ludwig Klee	Feb. 14, 1913	208	10	.....	.....
Ludwig Klee	Feb. 14, 1913	17	40	10	.....
J. H. Schmeelk No. 2	Feb. 14, 1913	312	2 45	.....	.....
J. H. Schmeelk No. 2	Feb. 14, 1913	11	90	.....	.....
J. H. Schmeelk No. 2	Feb. 14, 1913	21	95	.....	.....
J. H. Schmeelk No. 2	Feb. 14, 1913	632	20	.....	.....
W. S. Ford	Feb. 14, 1913	179	1 10	.....	.....
Robert W. Hoyt	Feb. 14, 1913	334	25	05	.....
Henry Burmester	Feb. 14, 1913	311	2 30	.....	.....
Henry Burmester	Feb. 14, 1913	29	65	.....	.....
Henry Burmester	Feb. 14, 1913	28	65	.....	.....
Henry Burmester	Feb. 14, 1913	554	2 15	.....	.....
Henry Burmester	Feb. 14, 1913	63	1 55	1 46	.....
John D. Bush	Feb. 14, 1913	95	30	.....	.....
Annie Oelrichs	Feb. 14, 1913	66	1 30	.....	.....
William Oelrichs	Feb. 14, 1913	303	75	.....	.....
William Oelrichs	Feb. 14, 1913	67	95	.....	.....
William Oelrichs	Feb. 14, 1913	65	50	.....	.....
William Oelrichs	Feb. 14, 1913	302	2 55	.....	.....
George Dickens	Feb. 14, 1913	43	80	.....	.....
William M. Schmeelk	Feb. 14, 1913	15	80	.....	.....
William M. Schmeelk	Feb. 14, 1913	316	2 20	.....	.....
David Jones	Feb. 14, 1913	17	95	.....	.....
David Jones	Feb. 14, 1913	315	85	.....	.....
W. H. Morrison	Feb. 14, 1913	551	30	.....	.....
W. H. Morrison	Feb. 14, 1913	159	1 40	.....	.....
W. H. Morrison	Feb. 14, 1913	345-A	85	.....	.....
J. H. Schmeelk No. 3	Feb. 14, 1913	313	2 25	.....	.....
J. H. Schmeelk No. 3	Feb. 14, 1913	314	70	.....	.....
J. H. Schmeelk No. 3	Feb. 14, 1913	14	1 00	.....	.....
J. H. Schmeelk No. 3	Feb. 14, 1913	13	75	.....	.....
J. H. Schmeelk No. 3	Feb. 14, 1913	18	1 05	.....	.....
W. R. Schenck	Feb. 14, 1913	501	6 45	.....	.....
P. Wm. Von Ahnen	Feb. 14, 1913	319	2 40	.....	.....
P. Wm. Von Ahnen	Feb. 14, 1913	500	60	.....	.....
P. Wm. Von Ahnen	Feb. 14, 1913	204	25	.....	.....
P. Wm. Von Ahnen	Feb. 14, 1913	32	2 65	.....	.....
P. Wm. Von Ahnen	Feb. 14, 1913	205	2 05	.....	.....
David B. Colon	Feb. 14, 1913	418½	43	.....	.....
David B. Colon	Feb. 14, 1913	950	1 20	33	.....
Haviland & Odell	Feb. 14, 1913	268	1 15	.....	.....
Haviland & Odell	Feb. 14, 1913	465	90	.....	.....
Haviland & Odell	Feb. 14, 1913	8	63	.....	.....
Haviland & Odell	Feb. 14, 1913	5, 6 & 7	1 88	.....	.....
Haviland & Odell	Feb. 14, 1913	15	62	.....	.....
Haviland & Odell	Feb. 14, 1913	384	1 87	.....	.....
Ferdinand Moller	Feb. 14, 1913	87	50	.....	.....
Ferdinand Moller	Feb. 14, 1913	86	45	.....	.....
Ferdinand Moller	Feb. 14, 1913	72	60	.....	.....
Ferdinand Moller	Feb. 14, 1913	530	85	.....	.....
Ferdinand Moller	Feb. 14, 1913	297	50	.....	.....
Ferdinand Moller	Feb. 14, 1913	296	60	.....	.....
Ferdinand Moller	Feb. 14, 1913	6	65	.....	.....
John H. Price	Feb. 15, 1913	196	27	.....	.....
John H. Price	Feb. 15, 1913	198	50	.....	.....
Henderson Journeay	Feb. 17, 1913	595	38	.....	.....
Henderson Journeay	Feb. 17, 1913	597	67	21	.....
J. W. C. Englebrecht	Feb. 17, 1913	599	1 15	.....	.....
J. W. C. Englebrecht	Feb. 17, 1913	389	93	.....	.....
J. W. C. Englebrecht	Feb. 17, 1913	591	60	54	.....
R. C. DuBois	Feb. 17, 1913	71	.....	31	.....
S. C., D. A. & M. L. Joline	Feb. 17, 1913	857	45	.....	.....
T. F. & S. De Hart	Feb. 17, 1913	10	23	.....	.....
T. F. & S. De Hart	Feb. 17, 1913	17	23	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
T. F. & S. De Hart	Feb. 17, 1913	14	$0 37	.....	.....
T. F. & S. De Hart	Feb. 17, 1913	149	2 00	.....	.....
T. F. & S. De Hart	Feb. 17, 1913	145	3 65	.....	.....
E. P. Manee	Feb. 17, 1913	63	1 35	$0 27	.....
A. S. Joline	Feb. 17, 1913	58	2 85	.....	.....
A. S. Joline	Feb. 17, 1913	340	40	.....	.....
A. S. Joline	Feb. 17, 1913	242	1 58	.....	.....
A. S. Joline	Feb. 17, 1913	59	1 03	.....	.....
A. S. Joline	Feb. 17, 1913	435	1 32	.....	.....
A. S. Joline	Feb. 17, 1913	675	1 30	.....	.....
A. S. Joline	Feb. 17, 1913	745	2 50	2 20	.....
Frank Joline	Feb. 17, 1913	300	1 03	.....	.....
David Joline	Feb. 17, 1913	9	33	.....	.....
David Joline	Feb. 17, 1913	330	90	.....	.....
David Joline	Feb. 17, 1913	292	1 23	.....	.....
Joline Bros	Feb. 17, 1913	60	1 20	.....	.....
Joline Bros	Feb. 17, 1913	343	1 02	.....	.....
Heirs of B. Joline	Feb. 17, 1913	290	75	.....	.....
Josephine Geffken	Feb. 17, 1913	4	35	.....	.....
Josephine Geffken	Feb. 17, 1913	5	45	.....	.....
Albert Geffken	Feb. 17, 1913	557	20	.....	.....
Albert Geffken	Feb. 17, 1912	2	25	.....	.....
Josephine C. Biggs	Feb. 17, 1913	149	40	.....	.....
Josephine C. Biggs	Feb. 17, 1913	144	75	.....	.....
Josephine C. Biggs	Feb. 17, 1913	524	1 00	.....	.....
Josephine C. Biggs	Feb. 17, 1913	150	1 80	.....	.....
Josephine C. Biggs	Feb. 17, 1913	151	15	82	.....
John D. Merrell	Feb. 17, 1913	869	45	09	.....
David Johnson	Feb. 17, 1913	167	50	.....	.....
David Johnson	Feb. 17, 1913	262	45	.....	.....
David Johnson	Feb. 17, 1913	606	55	.....	.....
David Johnson	Feb. 17, 1913	608	65	.....	.....
David Johnson	Feb. 17, 1913	610	28	.....	.....
George A. Schmeelk	Feb. 17, 1913	210	2 70	.....	.....
George A. Schmeelk	Feb. 17, 1913	281	55	.....	.....
George A. Schmeelk	Feb. 17, 1913	103	55	76	.....
Frederick Dens	Feb. 18, 1913	320	2 15	43	.....
Gustave Albright	Feb. 18, 1913	395	50	.....	.....
Gustave Albright	Feb. 18, 1913	399	35	.....	.....
Lucretia B. Morey	Feb. 18, 1913	940	43	09	.....
Henry S. Marshall	Feb. 18, 1913	653	1 97	.....	.....
Henry S. Marshall	Feb. 18, 1913	761	75	.....	.....
Henry S. Marshall	Feb. 18, 1913	764	75	.....	.....
George Newbury	Feb. 18, 1913	635	30	06	.....
R. R. Mott	Feb. 18, 1913	6	35	07	.....
Abram Latourette	Feb. 18, 1913	433	3 25	.....	.....
William C. Baldwin	Feb. 18, 1913	199	1 35	.....	.....
A. H. Haack	Feb. 18, 1913	108	1 05	.....	.....
A. H. Haack	Feb. 18, 1913	309	3 30	.....	.....
A. H. Haack	Feb. 18, 1913	7	55	.....	.....
A. H. Haack	Feb. 18, 1913	12½	45	1 07	.....
J. E. LaForge	Feb. 18, 1913	358	75	.....	.....
J. E. LaForge	Feb. 18, 1913	366	53	.....	.....
Steinemeir & Fisher	Feb. 18, 1913	348	2 40	.....	.....
Steinemeir & Fisher	Feb. 18, 1913	342	1 25	.....	.....
Josiah Thompson	Feb. 18, 1913	91 A & G	4 55	.....	.....
Josiah Thompson	Feb. 18, 1913	122	1 10	.....	.....
Josiah Thompson	Feb. 18, 1913	123	35	.....	.....
Josiah Thompson	Feb. 18, 1913	323	1 30	.....	.....
G. W. Van Name	Feb. 18, 1913	55	1 30	.....	.....
G. W. Van Name	Feb. 18, 1913	697	32	32	.....
Elmer I. Palmer	Feb. 18, 1913	973	8 00	.....	.....
Elmer I. Palmer	Feb. 18, 1913	953	1 15	.....	.....
Elmer I. Palmer	Feb. 18, 1913	897	8 20	.....	.....
Elmer I. Palmer	Feb. 18, 1913	896	3 75	.....	.....
Elmer I. Palmer	Feb. 18, 1913	Several	15 63	.....	.....
Charles E. Palmer & Son	Feb. 18, 1913	Several	62 50	.....	.....
Charles E. Palmer & Son	Feb. 18, 1913	Several	14 50	.....	.....
Charles E. Palmer & Son	Feb. 18, 1913	671	1 23	.....	.....
C. E., C. F. & H. Palmer	Feb. 18, 1913	859	16 20	.....	.....
Palmer & Cornell	Feb. 18, 1913	369	3 00	.....	.....
Abram Martineau	Feb. 18, 1913	8	30	.....	.....
Abram Martineau	Feb. 18, 1913	385	1 05	.....	.....
Abram Martineau	Feb. 18, 1913	506	2 24	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
Abram Martineau	Feb. 18, 1913	377	$1 00	.....	.....
Abram Martineau	Feb. 18, 1913	228	2 25	.....	.....
Abram Martineau	Feb. 18, 1913	230	5 70	.....	.....
Abram Martineau	Feb. 18, 1913	865	2 75	.....	.....
J. H. & J. H. Vreeland, Jr	Feb. 18, 1913	521	1 25	.....	.....
J. H. & J. H. Vreeland, Jr	Feb. 18, 1913	607	2 50	.....	.....
J. H. & J. H. Vreeland, Jr	Feb. 18, 1913	185	3 00	.....	.....
J. H. & J. H. Vreeland, Jr	Feb. 18, 1913	633	1 45	.....	.....
Charles E. Denton	Feb. 18, 1913	340	2 05	.....	.....
Charles E. Denton	Feb. 18, 1913	341	1 35	.....	.....
Charles E. Denton	Feb. 18, 1913	153	55	.....	.....
Charles E. Denton	Feb. 18, 1913	152	80	$0 95	.....
Carl Peers	Feb. 18, 1913	308	1 90	.....	.....
Carl Peers	Feb. 18, 1913	133	95	.....	.....
Carl Peers	Feb. 18, 1913	215	70	71	.....
John M. Sleight	Feb. 18, 1913	129	28	.....	.....
John M. Sleight	Feb. 18, 1913	125	2 97	.....	.....
Estate of Jacob Brady	Feb. 18, 1913	249	6 90	.....	.....
William C. Porth	Feb. 18, 1913	329	3 63	.....	.....
William C. Porth	Feb. 18, 1913	323	3 45	.....	.....
William C. Porth	Feb. 18, 1913	325	2 00	.....	.....
William C. Porth	Feb. 18, 1913	319	1 25	.....	.....
William C. Porth	Feb. 18, 1913	333	37	.....	.....
William C. Porth	Feb. 18, 1913	843	1 15	.....	.....
William C. Porth	Feb. 18, 1913	321	80	.....	.....
William C. Porth	Feb. 18, 1913	331	1 30	.....	.....
William C. Porth	Feb. 18, 1913	327	1 25	.....	.....
William C. Porth	Feb. 18, 1913	412	63	.....	.....
William C. Porth	Feb. 18, 1913	779	6 60	.....	.....
William C. Porth	Feb. 18, 1913	408	1 25	.....	.....
William C. Porth	Feb. 18, 1913	781	10 70	.....	.....
N. S. Ackerly & Son Co	Feb. 19, 1913	85	12 80	.....	.....
N. S. Ackerly & Son Co	Feb. 19, 1913	87	15 15	.....	.....
N. S. Ackerly & Son Co	Feb. 19, 1913	86	27 30	.....	.....
N. S. Ackerly & Son Co	Feb. 19, 1913	Several	4 05	.....	.....
N. S. Ackerly & Son Co	Feb. 19, 1913	Several	22 23	.....	.....
N. S. Ackerly & Son Co	Feb. 19, 1913	Several	7 50	.....	.....
N. S. Ackerly & Son Co	Feb. 19, 1913	Several	7 50	.....	.....
N. S. Ackerly & Son Co	Feb. 19, 1913	Several	10 00	.....	.....
N. S. Ackerly & Son Co	Feb. 19, 1913	Several	10 00	.....	.....
N. S. Ackerly & Son Co	Feb. 19, 1913	16	5 25	.....	.....
N. S. Ackerly & Son Co	Feb. 19, 1913	480	1 15	.....	.....
N. S. Ackerly & Son Co	Feb. 19, 1913	984	37 50	.....	.....
N. S. Ackerly & Son Co	Feb. 19, 1913	985	25 00	.....	.....
Joseph L. Kerrigan	Feb. 19, 1913	15	49 45	.....	.....
John H. Vandeveer	Feb. 19, 1913	Several	30 00	.....	.....
John H. Vandeveer	Feb. 19, 1913	Several	27 50	.....	.....
H. Davis Ackerly	Feb. 19, 1913	16	14 00	.....	.....
H. Davis Ackerly	Feb. 19, 1913	17	48 40	.....	.....
S. Le Roy Ackerly	Feb. 19, 1913	Section C	11 70	.....	.....
S. Le Roy Ackerly	Feb. 19, 1913	Several	32 50	.....	.....
N. S. Ackerly	Feb. 19, 1913	14	43 05	.....	.....
N. S. Ackerly	Feb. 19, 1913	Several	15 00	.....	.....
Benjamin W. Carl	Feb. 19, 1913	Several	22 50	.....	.....
Benjamin W. Carl	Feb. 19, 1913	Several	30 00	.....	.....
Joseph M. Belford	Feb. 19, 1913	Several	17 50	.....	.....
Joseph M. Belford	Feb. 19, 1913	Several	15 00	.....	.....
Joseph M. Belford	Feb. 19, 1913	Several	30 00	.....	.....
Timothy T. Mott	Feb. 19, 1913	7	30	06	.....
Herbert Androvette	Feb. 19, 1913	178	60	12	.....
H. Fletcher Fordham	Feb. 19, 1913	73	17 25	.....	.....
H. Fletcher Fordham	Feb. 19, 1913	74	17 25	6 90	.....
William Joline	Feb. 19, 1913	70	2 63	54	.....
Christian Walle	Feb. 19, 1913	279	55	.....	.....
Christian Walle	Feb. 19, 1913	626	38	.....	.....
Christian Walle	Feb. 19, 1913	396	28	.....	.....
Christian Walle	Feb. 19, 1913	679	1 18	.....	.....
Christian Walle	Feb. 19, 1913	394	55	.....	.....
La Forge & Thompson	Feb. 20, 1913	422½	73	16	.....
Wesley Thompson	Feb. 20, 1913	126	1 45	.....	.....
Wesley Thompson	Feb. 20, 1913	642	93	.....	.....
Wesley Thompson	Feb. 20, 1913	640	52	.....	.....
Wesley Thompson	Feb. 20, 1913	776	1 15	81	.....
Sealshipt Oyster System	Feb. 21, 1913	9	26 65	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
Sealshipt Oyster System	Feb. 21, 1913	10	$26 53	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	8	26 60	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	7	26 95	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	6	27 23	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	5	27 38	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	4	27 55	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	3	26 25	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	2	28 20	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	1	28 30	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	Section 3	62 50	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	27	48 38	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	28	19 05	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	Several	25 00	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	Several	25 00	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	20	62 40	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	21	18 63	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	22	14 72	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	19	62 25	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	18	62 25	.....	.....
Sealshipt Oyster System	Feb. 21, 1913	40	11 57	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	26	28 93	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	787	1 65	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	498	2 37	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	259	1 65	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	354	48	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	490	2 45	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	463	1 65	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	Several	37 50	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	Several	62 50	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	Several	62 50	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	Several	65 00	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	891	37 80	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	891	20 00	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	891	20 00	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	891	20 00	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	891	37 50	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	891	60 00	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	891	17 50	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	88	32 05	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	924	14 55	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	929	10 90	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	966	9 10	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	Several	63 90	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	Plot D	22 18	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	688	90	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	Several	15 00	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	Several	16 25	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	542	70	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	64	25	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	209	3 15	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	68	50	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	207	3 55	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	327	2 90	.....	.....
Sealshipt Oyster System	Feb. 19, 1913	913	10 65	.....	.....
John T. Ford	Feb. 19, 1913	289	1 15	$0 23	.....
Oyster Bay Oyster Co	Feb. 19, 1913	Several	36 25	.....	.....
Oyster Bay Oyster Co	Feb. 19, 1913	Several	32 50	.....	.....
Mills & Ronik	Feb. 25, 1913	Several	18 75	.....	.....
William J. Mills	Feb. 25, 1913	Several	28 75	.....	.....
William Ruddock	Feb. 25, 1913	239	1 50	30	.....
A. W. Sharrett	Feb. 26, 1913	488	1 12	.....	.....
A. W. Sharrett	Feb. 26, 1913	506	2 24	.....	.....
A. W. Sharrett	Feb. 26, 1913	683	90	.....	.....
A. W. Sharrett	Feb. 26, 1913	656	3 30	.....	.....
Alfred Jones	Feb. 26, 1913	92	6 25	1 25	.....
Lucius C. Jones	Feb. 27, 1913	104	6 30	1 26	.....
E. H. Mackey, Jr	Feb. 27, 1913	Section C	6 75	.....	.....
E. H. Mackey, Jr	Feb. 27, 1913	90	8 50	.....	.....
E. H. Mackey, Jr	Feb. 27, 1913	Section A	6 30	.....	.....
Charles Cowens	Feb. 27, 1913	Section D	3 95	.....	.....
Stubbs & Allen	Feb. 27, 1913	Section F	4 20	.....	.....
Henry Stubbs	Feb. 27, 1913	Section A	6 25	.....	.....
Henry Stubbs	Feb. 27, 1913	94	2 00	.....	.....
Daniel Roland	Feb. 27, 1913	503	90	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
Daniel Roland	Feb. 27, 1913	143	$1 00	.....	.....
Daniel Roland	Feb. 27, 1913	346	85	.....	.....
Daniel Roland	Feb. 27, 1913	345-B	1 40	.....	.....
Lewis Bros.	Feb. 27, 1913	299	5 15	.....	.....
Lewis Bros.	Feb. 27, 1913	300	21 05	$5 24	.....
George H. Hicks	Feb. 28, 1913	376	50	.....	.....
George H. Hicks	Feb. 28, 1913	378	80	.....	.....
George H. Hicks	Feb. 28, 1913	407	1 95	.....	.....
P. W. Housman	Feb. 28, 1913	24	45	.....	.....
P. W. Housman	Feb. 28, 1913	42	30	.....	.....
Christian Hoobs	Mar. 1, 1913	619	90	18	.....
Christian Hoobs	Mar. 3, 1913	619	90	11	.....
Mattituck Oyster Co	Mar. 3, 1913	Several	70 00	.....	.....
Mattituck Oyster Co	Mar. 3, 1913	Several	30 00	.....	.....
Mattituck Oyster Co	Mar. 3, 1913	Several	15 00	.....	.....
Mattituck Oyster Co	Mar. 3, 1913	Several	4 35	.....	.....
Mattituck Oyster Co	Mar. 3, 1913	Several	11 25	.....	.....
Mattituck Oyster Co	Mar. 3, 1913	Several	8 75	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	317	3 30	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	573	2 75	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	581	1 40	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	580	2 85	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	577	95	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	273	2 20	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	664	50	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	337	1 65	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	225	1 30	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	308	1 60	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	76	45	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	232	1 00	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	209	10	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	276	75	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	192	30	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	485	5 80	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	142	1 25	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	107	1 20	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	36	1 35	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	328	1 35	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	351	2 00	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	37	75	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	130	60	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	191	40	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	39	1 20	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	193	80	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	532	3 50	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	90	40	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	172	6 80	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	106	35	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	62	1 30	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	176	95	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	38	85	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	35	2 00	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	174	1 25	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	109	1 65	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	486	70	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	78	1 10	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	141	1 50	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	148	80	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	493	70	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	553	3 30	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	145	1 30	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	489	3 15	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	58	60	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	220	1 05	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	226	45	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	335	1 65	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	623	1 25	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	147	3 15	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	59	1 50	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	75	1 00	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	74	80	.....	.....
H. W. Schmeelk Oyster Co	Mar. 3, 1913	230	1 45	.....	.....
C. C. & C. M. Decker	Mar. 4, 1913	25	23	.....	.....
C. C. & C. M. Decker	Mar. 4, 1913	666	35	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
C. C. & C. M. Decker	Mar. 4, 1913	670	$1 18	.....	.....
C. M. Decker	Mar. 4, 1913	734	37	.....	.....
James A. Bailey	Mar. 4, 1913	603	8 30	$1 66	.....
Wilbur N. Manee	Mar. 4, 1913	156	53	.....	.....
Wilbur N. Manee	Mar. 4, 1913	76	53	.....	.....
Wilbur N. Manee	Mar. 4, 1913	452	58	36	.....
L. G. Griffing	Mar. 4, 1913	13	20 90	.....	.....
George W. Conklin	Mar. 4, 1913	996	23 25	4 65	.....
Stirling Oyster Co	Mar. 5, 1913	Several	52 50	10 50	.....
William F. Hoyt	Mar. 5, 1913	Several	8 55	1 71	.....
Roscoe Bishop	Mar. 5, 1913	9	9 67	.....	.....
Elizabeth Denice	Mar. 5, 1913	258	1 35	.....	.....
Elizabeth Denice	Mar. 5, 1913	259	90	45	.....
Edward Webber	Mar. 6, 1913	183	80	.....	.....
Edward Webber	Mar. 6, 1913	44	50	.....	.....
Edward Webber	Mar. 6, 1913	10	1 10	.....	.....
Edward Webber	Mar. 6, 1913	47	1 45	.....	.....
Elsworth B. Lewis	Mar. 6, 1913	177	40	.....	.....
Elsworth B. Lewis	Mar. 6, 1913	189	30	.....	.....
Elsworth B. Lewis	Mar. 6, 1913	191	13	.....	.....
Elsworth B. Lewis	Mar. 6, 1913	175	37	.....	.....
Elsworth B. Lewis	Mar. 6, 1913	181	1 25	.....	.....
Elsworth B. Lewis	Mar. 6, 1913	682	20	.....	.....
Mersereau & Lewis	Mar. 6, 1913	669	63	13	.....
Charles Bogardus	Mar. 6, 1913	655	1 85	.....	.....
H. E. Mackey	Mar. 6, 1913	Section E	3 53	71	.....
Charles V. Leviness	Mar. 10, 1913	238	90	.....	.....
Charles V. Leviness	Mar. 10, 1913	230	50	.....	.....
W. Elsworth Sprague	Mar. 11, 1913	374	3 65	.....	.....
W. Elsworth Sprague	Mar. 11, 1913	405	2 30	.....	.....
W. Elsworth Sprague	Mar. 11, 1913	406	1 80	.....	.....
W. Elsworth Sprague	Mar. 11, 1913	470	8 30	.....	.....
W. Elsworth Sprague	Mar. 11, 1913	373	1 10	.....	.....
George H. Sharrett	Mar. 12, 1913	486	1 55	.....	.....
Bertha Sharrett	Mar. 12, 1913	148	1 05	.....	.....
S. A. Still	Mar. 13, 1913	1000	12 50	2 50	.....
Nelson Jacklin	Mar. 13, 1913	192	25	.....	.....
Nelson Jacklin	Mar. 13, 1913	546	98	.....	.....
Nelson Jacklin	Mar. 13, 1913	556	50	.....	.....
Nelson Jacklin	Mar. 13, 1913	774	35	.....	.....
Nelson Jacklin	Mar. 13, 1913	790	25	.....	.....
Nelson Jacklin	Mar. 13, 1913	828	50	.....	.....
Charles L. Pearsall	Mar. 13, 1913	44	95	.....	.....
Charles L. Pearsall	Mar. 13, 1913	421	3 90	97	.....
Thomas Colon	Mar. 15, 1913	448	23	.....	.....
Mrs. Charles Zeigler	Mar. 15, 1913	414½	54	.....	.....
Mrs. Charles Zeigler	Mar. 15, 1913	416	58	.....	.....
Mrs. Charles Zeigler	Mar. 15, 1913	422	73	38	.....
E. F. Colon	Mar. 15, 1913	951	2 30	.....	.....
E. F. Colon	Mar. 15, 1913	952	40	.....	.....
John F. Quigley	Mar. 15, 1913	8	90	.....	.....
J. H. McCrodden	Mar. 17, 1913	22	1 00	.....	.....
Clara McCrodden	Mar. 17, 1913	23	65	13	.....
Frank Rogers	Mar. 17, 1913	36	27 60	.....	.....
Frank Rogers	Mar. 17, 1913	37	24 50	.....	.....
Frank Rogers	Mar. 17, 1913	35	34 75	.....	.....
Frank Rogers	Mar. 17, 1913	103	7 45	.....	.....
F. F. Downs	Mar. 20, 1913	Several	10 00	.....	.....
F. F. Downs	Mar. 20, 1913	Several	15 00	.....	.....
H. S. Van Wagner	Mar. 21, 1913	567	1 00	20	.....
Thomas L. Jobes	Mar. 28, 1913	550	1 33	.....	.....
Thomas L. Jobes	Mar. 28, 1913	548	88	.....	.....
Thomas L. Jobes	Mar. 28, 1913	579	35	.....	.....
Thomas L. Jobes	Mar. 28, 1913	573	30	.....	.....
Thomas L. Jobes	Mar. 28, 1913	581	2 53	.....	.....
Thomas L. Jobes	Mar. 28, 1913	840	40	.....	.....
Joseph Ryder	Mar. 29, 1913	288	50	10	.....
Grace L. Ryder	Mar. 29, 1913	119	20	04	.....
Benjamin Ryder	Mar. 29, 1913	246	50	.....	.....
Benjamin Ryder	Mar. 29, 1913	97	45	.....	.....
Ben jmin Ryder	Mar. 29, 1913	93	45	.....	.....
Benjamin Ryder	Mar. 29, 1913	126	15	31	.....
John I. Merrell	Mar. 29, 1913	524	2 15	.....	.....
John I. Merrell	Mar. 29, 1913	504	2 37	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
John I. Merrell	Mar. 29, 1913	833	$1 30	.....	.....
John I. Merrell	Mar. 29, 1913	446	12	.....	.....
John I. Merrell	Mar. 29, 1913	258	3 45	.....	.....
John I. Merrell	Mar. 29, 1913	477	3 12	.....	.....
John I. Merrell	Mar. 29, 1913	478	3 30	.....	.....
John I. Merrell	Mar. 29, 1913	474	1 13	.....	.....
John I. Merrell	Mar. 29, 1913	475	1 88	.....	.....
John I. Merrell	Mar. 29, 1913	476	1 28	.....	.....
John I. Merrell	Mar. 29, 1913	232	3 00	.....	.....
John I. Merrell	Mar. 29, 1913	352	1 08	.....	.....
John I. Merrell	Mar. 29, 1913	460	60	.....	.....
John I. Merrell	Mar. 29, 1913	919	3 60	$5 65	.....
Andrew Radel	Mar. 29, 1913	3	43 38	.....	.....
Andrew Radel	Mar. 29, 1913	75	26 15	.....	.....
Andrew Radel	Mar. 29, 1913	76	26 05	.....	.....
Andrew Radel	Mar. 29, 1913	77	26 00	.....	.....
Andrew Radel	Mar. 29, 1913	78	26 00	.....	.....
Andrew Radel	Mar. 29, 1913	98	26 00	.....	.....
Andrew Radel	Mar. 29, 1913	99	26 00	.....	.....
John M. Benner	Mar. 29, 1913	8	18 83	.....	.....
John M. Benner	Mar. 29, 1913	50	2 20	.....	.....
John M. Benner	Mar. 29, 1913	46	2 20	.....	.....
John M. Benner	Mar. 29, 1913	45	2 20	.....	.....
John M. Benner	Mar. 29, 1913	44	2 20	.....	.....
John M. Benner	Mar. 29, 1913	47	2 20	.....	.....
John M. Benner	Mar. 29, 1913	51	2 20	.....	.....
John M. Benner	Mar. 29, 1913	49	2 20	.....	.....
John M. Benner	Mar. 29, 1913	43	2 20	.....	.....
John M. Benner	Mar. 29, 1913	48	2 20	.....	.....
John M. Benner	Mar. 29, 1913	42	2 20	.....	.....
John M. Benner	Mar. 29, 1913	2	16 80	.....	.....
John M. Benner	Mar. 29, 1913	67	3 07	.....	.....
John M. Benner	Mar. 29, 1913	68	7 05	.....	.....
John M. Benner	Mar. 29, 1913	55	3 50	.....	.....
John M. Benner	Mar. 29, 1913	238	3 75	.....	.....
John M. Benner	Mar. 29, 1913	112	7 60	.....	.....
John M. Benner	Mar. 29, 1913	115	23 85	.....	.....
John M. Benner	Mar. 29, 1913	119	4 40	.....	.....
John M. Benner	Mar. 29, 1913	116	16 35	.....	.....
John M. Benner	Mar. 29, 1913	111	13 50	.....	.....
John M. Benner	Mar. 29, 1913	110	6 45	.....	.....
John M. Benner	Mar. 29, 1913	125	54 05	.....	.....
John M. Benner	Mar. 29, 1913	124	29 55	.....	.....
John M. Benner	Mar. 29, 1913	113	60 60	.....	.....
John M. Benner	Mar. 29, 1913	Several	41 10	.....	.....
John M. Benner	Mar. 29, 1913	Several	45 00	.....	.....
John M. Benner	Mar. 29, 1913	83	19 25	.....	.....
John M. Benner	Mar. 29, 1913	69	2 35	.....	.....
John M. Benner	Mar. 29, 1913	72	30 55	.....	.....
John M. Benner	Mar. 29, 1913	Several	105 00	.....	.....
John M. Benner	Mar. 29, 1913	Several	37 50	.....	.....
John M. Benner	Mar. 29, 1913	Several	85 65	.....	.....
Standard Oyster Co	Mar. 29, 1913	186	1 28	.....	.....
Standard Oyster Co	Mar. 29, 1913	226	4 50	.....	.....
Standard Oyster Co	Mar. 29, 1913	240	80	.....	.....
Standard Oyster Co	Mar. 29, 1913	654	2 05	.....	.....
Standard Oyster Co	Mar. 29, 1913	216	3 15	.....	.....
Standard Oyster Co	Mar. 29, 1913	172	2 33	.....	.....
Standard Oyster Co	Mar. 29, 1913	256	6 32	.....	.....
Standard Oyster Co	Mar. 29, 1913	53	1 70	.....	.....
Standard Oyster Co	Mar. 29, 1913	73	95	.....	.....
Standard Oyster Co	Mar. 29, 1913	483	60	.....	.....
Standard Oyster Co	Mar. 29, 1913	492	1 48	.....	.....
Standard Oyster Co	Mar. 29, 1913	499	1 45	.....	.....
Standard Oyster Co	Mar. 29, 1913	74	1 65	.....	.....
Standard Oyster Co	Mar. 29, 1913	41	13	.....	.....
Standard Oyster Co	Mar. 29, 1913	40	10	.....	.....
Standard Oyster Co	Mar. 29, 1913	856	1 45	.....	.....
Standard Oyster Co	Mar. 29, 1913	174	4 60	.....	.....
Standard Oyster Co	Mar. 29, 1913	147	9 40	.....	.....
Standard Oyster Co	Mar. 29, 1913	493	2 45	.....	.....
Standard Oyster Co	Mar. 29, 1913	676	41 75	.....	.....
Standard Oyster Co	Mar. 29, 1913	Several	62 50	.....	.....
Standard Oyster Co	Mar. 29, 1913	252	5 00	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
Standard Oyster Co	Mar. 29, 1913	479	$2 15	.....	.....
Standard Oyster Co	Mar. 29, 1913	860	2 80	.....	.....
Standard Oyster Co	Mar. 29, 1913	238	7 35	.....	.....
Standard Oyster Co	Mar. 29, 1913	902	1 25	.....	.....
Standard Oyster Co	Mar. 29, 1913	903	1 58	.....	.....
Standard Oyster Co	Mar. 29, 1913	904	1 05	.....	.....
Standard Oyster Co	Mar. 29, 1913	905	1 08	.....	.....
W. H. Lockwood	Mar. 29, 1913	920	1 80	.....	.....
W. H. Lockwood	Mar. 29, 1913	925	95	.....	.....
W. H. Lockwood	Mar. 29, 1913	927	38 80	.....	.....
W. H. Lockwood	Mar. 29, 1913	944	9 00	.....	.....
W. H. Lockwood	Mar. 29, 1913	945	9 85	.....	.....
Radel Oyster Co	Mar. 29, 1913	5	42 80	.....	.....
Radel Oyster Co	Mar. 29, 1913	7	58 80	.....	.....
Radel Oyster Co	Mar. 29, 1913	4	25 33	.....	.....
Radel Oyster Co	Mar. 29, 1913	6	36 60	.....	.....
W. J. McGrory	Mar. 29, 1913	285	10 30	$2 06	.....
James A. Deveaugh	Mar. 29, 1913	235	3 10	62	.....
Joseph B. Glasier	Mar. 29, 1913	248	45	.....	.....
F. C. & H. A. Glasier	Mar. 29, 1913	245	5 90	.....	.....
F. C. & H. A. Glasier	Mar. 29, 1913	246	55	.....	.....
F. C. & H. A. Glasier	Mar. 29, 1913	237	4 15	.....	.....
New York Oyster Co	Mar. 31, 1913	565	63	.....	.....
New York Oyster Co	Mar. 31, 1913	549	65	.....	.....
New York Oyster Co	Mar. 31, 1913	622	4 23	.....	.....
New York Oyster Co	Mar. 31, 1913	604	35	.....	.....
New York Oyster Co	Mar. 31, 1913	466	4 45	.....	.....
New York Oyster Co	Mar. 31, 1913	470	70	.....	.....
New York Oyster Co	Mar. 31, 1913	932	2 80	.....	.....
New York Oyster Co	Mar. 31, 1913	941	1 20	.....	.....
New York Oyster Co	Mar. 31, 1913	540	3 35	.....	.....
New York Oyster Co	Mar. 31, 1913	955	10 70	.....	.....
New York Oyster Co	Mar. 31, 1913	942	3 45	.....	.....
New York Oyster Co	Mar. 31, 1913	959	2 50	.....	.....
New York Oyster Co	Mar. 31, 1913	957	75	.....	.....
New York Oyster Co	Mar. 31, 1913	958	23 90	.....	.....
New York Oyster Co	Mar. 31, 1913	943	12 55	.....	.....
New York Oyster Co	Mar. 31, 1913	967	16 75	.....	.....
New York Oyster Co	Mar. 31, 1913	968	1 85	.....	.....
New York Oyster Co	Mar. 31, 1913	962	25	.....	.....
New York Oyster Co	Mar. 31, 1913	930	12 45	.....	.....
New York Oyster Co	Mar. 31, 1913	1	173 90	.....	.....
New York Oyster Co	Mar. 31, 1913	970	2 10	.....	.....
New York Oyster Co	Mar. 31, 1913	969	40	.....	.....
New York Oyster Co	Mar. 31, 1913	3	16 90	.....	.....
New York Oyster Co	Mar. 31, 1913	4	1 65	.....	.....
New York Oyster Co	Mar. 31, 1913	2	41 75	.....	.....
New York Oyster Co	Mar. 31, 1913	987	25 00	.....	.....
New York Oyster Co	Mar. 31, 1913	1003	15 85	.....	.....
New York Oyster Co	Mar. 31, 1913	916	11 05	.....	.....
New York Oyster Co	Mar. 31, 1913	918	3 20	.....	.....
New York Oyster Co	Mar. 31, 1913	1006	25 45	.....	.....
New York Oyster Co	Mar. 31, 1913	975	3 90	.....	.....
New York Oyster Co	Mar. 31, 1913	983	75	.....	.....
Almer Decker	Mar. 31, 1913	52	20	.....	.....
Almer Decker	Mar. 31, 1913	18	13	.....	.....
Almer Decker	Mar. 31, 1913	724	80	.....	.....
Almer Decker	Mar. 31, 1913	725	95	42	.....
John Frederick	April 3, 1913	458	1 90	.....	.....
F. F. Downs	April 3, 1913	Several	33 75	.....	.....
F. F. Downs	April 3, 1913	Several	6 25	.....	.....
Henry Von Twistern	April 3, 1913	555	30	.....	.....
Henry Von Twistern	April 3, 1913	12	60	18	.....
Monroe & Remsen	April 15, 1913	464	1 50	.....	.....
Henry Cornell	April 16, 1913	409	1 10	.....	.....
Warren Cornell	April 16, 1913	453	2 15	.....	.....
Warren Cornell	April 16, 1913	449	50	.....	.....
Warren Cornell	April 16, 1913	372	1 25	.....	.....
C. B. Sprague	April 23, 1913	749	48	.....	.....
C. B. Sprague	April 23, 1913	753	35	16	.....
George E. Sprague	April 23, 1913	751	25	05	.....
Garret S. Braisted	April 23, 1913	482	1 50	30	.....
F. A. Brimlow	April 23, 1913	320	85	.....	.....
Marcellus T. Merrell	April 23, 1913	395	1 30	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
Marcellus T. Merrell	April 23, 1913	397	$1 20	.....	.....
George W. Doughty	April 23, 1913	386	45	.....	.....
George W. Doughty	April 23, 1913	415	1 10	.....	.....
George W. Doughty	April 23, 1913	443	1 20	.....	.....
George W. Doughty	April 23, 1913	383	1 25	.....	.....
George W. Doughty	April 23, 1913	377	50	$0 90	.....
A. C. Sofield	April 23, 1913	46	17	.....	.....
A. C. Sofield	April 23, 1913	24	20	07	.....
Peter Cannon	April 23, 1913	733	05	01	.....
J. G. Winant	April 24, 1913	765	20	.....	.....
Ezra Sprague	April 24, 1913	375	30	.....	.....
Ezra Sprague	April 24, 1913	433-A	40	.....	.....
Ezra Sprague	April 24, 1913	433-B	40	.....	.....
Ezra Sprague	April 24, 1913	434	60	34	.....
Richard H. Smith	April 24, 1913	371	1 55	.....	.....
Richard H. Smith	April 24, 1913	400	2 50	81	.....
Willett E. Raynor	April 24, 1913	561	2 00	.....	.....
Willett E. Raynor	April 24, 1913	260	70	.....	.....
Willett E. Raynor	April 24, 1913	257	1 20	.....	.....
Willett E. Raynor	April 24, 1913	261	50	88	$0 11
S. D. Abrams, Jr.	April 24, 1913	401	70	.....	.....
S. D. Abrams, Jr.	April 24, 1913	402	10	.....	.....
S. D. Abrams, Jr.	April 24, 1913	435	75	.....	.....
S. D. Abrams, Jr.	April 24, 1913	384	65	44	08
James W. Barnes	April 28, 1913	300	1 80	36	.....
A. W. Androvette	April 28, 1913	449	60	12	.....
R. W. La Forge	April 28, 1913	212	38	.....	.....
R. W. La Forge	April 28, 1913	143	25	.....	.....
R. W. La Forge	April 28, 1913	872	20	.....	.....
R. W. La Forge	April 28, 1913	961	25	.....	.....
R. W. La Forge	April 28, 1913	976	2 50	72	12
W. W. La Forge	April 28, 1913	596	97	.....	.....
W. W. La Forge	April 28, 1913	594	37	.....	.....
W. W. La Forge	April 28, 1913	592	40	.....	.....
W. W. La Forge	April 28, 1913	142-B	87	.....	.....
W. W. La Forge	April 28, 1913	123	85	.....	.....
W. W. La Forge	April 28, 1913	975	4 10	.....	.....
W. W. La Forge	April 28, 1913	983	1 40	1 78	39
R. W. & W. W. La Forge	April 28, 1913	281	1 40	.....	.....
R. W. & W. W. La Forge	April 28, 1913	462	30	34	.....
Robert Lee	April 28, 1913	250	2 30	.....	.....
Robert Lee	April 28, 1913	257	3 90	1 24	21
George H. Valentine	April 29, 1913	981	2 85	57	.....
Croel B. Price	April 29, 1913	710	50	.....	.....
Croel B. Price	April 29, 1913	711	15	.....	.....
Croel B. Price	April 29, 1913	738	75	.....	.....
Croel B. Price	April 29, 1913	48	85	.....	09
Stephen Collins	April 29, 1913	255	1 60	.....	.....
Stephen Collins	April 29, 1913	234	1 80	.....	.....
Stephen Collins	April 29, 1913	265	50	.....	.....
John O. Carlson	April 29, 1913	605	2 20	44	07
James Boerum	April 29, 1913	475	1 55	.....	.....
Smith Sprague	April 29, 1913	394	45	.....	.....
Smith Sprague	April 29, 1913	390	1 00	.....	.....
Smith Sprague	April 29, 1913	570	1 25	.....	.....
Smith Sprague	April 29, 1913	417	40	.....	.....
Smith Sprague	April 29, 1913	416	55	.....	.....
Smith Sprague	April 29, 1913	393	40	.....	.....
Smith Sprague	April 29, 1913	438	75	.....	.....
Smith Sprague	April 29, 1913	388	90	1 14	.....
Sprague & Doughty	April 29, 1913	444	43	.....	.....
Sprague & Doughty	April 29, 1913	381	85	.....	.....
Sprague & Doughty	April 29, 1913	447	80	.....	.....
Sprague & Doughty	April 29, 1913	382	60	.....	.....
Sprague & Doughty	April 29, 1913	387	3 45	.....	.....
Sprague & Doughty	April 29, 1913	418	75	.....	.....
Sprague & Doughty	April 29, 1913	442	1 30	.....	.....
Sprague & Doughty	April 29, 1913	380	20	.....	.....
Sprague & Doughty	April 29, 1913	379	45	1 77	.....
John H. Tilley	April 29, 1913	326	7 60	1 52	.....
Selah T. Clock	April 30, 1913	998	25 00	.....	.....
Selah T. Clock	April 30, 1913	988	37 50	.....	.....
Selah T. Clock	April 30, 1913	991	37 50	20 00	.....
Est. John Marshall	April 30, 1913	649	95	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
Est. John Marshall	April 30, 1913	651	$0 90	.....	.....
Est. John Marshall	April 30, 1913	661	47	.....	.....
Est. John Marshall	April 30, 1913	671	1 25	.....	.....
Est. John Marshall	April 30, 1913	744	1 00	.....	.....
Est. John Marshall	April 30, 1913	746	30	.....	.....
Est. John Marshall	April 30, 1913	750	70	.....	.....
Charles Gateson	April 30, 1913	597	3 40	.....	$0 10
E. J. Still	April 30, 1913	69	55	.....	.....
E. J. Still	April 30, 1913	66	50	.....	.....
E. J. Still	April 30, 1913	68	20	.....	.....
E. J. Still	April 30, 1913	341	55	$0 36	07
Charles Vroom	April 30, 1913	Several	21 45	.....	.....
Charles Vroom	April 30, 1913	Several	5 15	.....	.....
Webb Sprague	April 30, 1913	425	75	.....	.....
Webb Sprague	April 30, 1913	422	70	.....	.....
Webb Sprague	April 30, 1913	426	75	44	.....
Theodore Sprague	April 30, 1913	429	1 80	.....	.....
Theodore Sprague	April 30, 1913	396	35	43	.....
Theodore & Ezra Sprague	April 30, 1913	454	2 25	.....	.....
Theodore & Ezra Sprague	April 30, 1913	451	1 30	.....	.....
Theodore & Ezra Sprague	April 30, 1913	450	1 45	.....	.....
Theodore & Ezra Sprague	April 30, 1913	366	30	1 06	.....
George H. Manee	April 30, 1913	542	33	07	01
Glenwood Oyster Co	April 30, 1913	Several	60 00	.....	.....
Glenwood Oyster Co	April 30, 1913	120	3 95	.....	.....
Glenwood Oyster Co	April 30, 1913	109	7 35	.....	.....
Glenwood Oyster Co	April 30, 1913	80	39 85	.....	.....
Glenwood Oyster Co	April 30, 1913	609	3 15	.....	.....
Thomas Pearsall	April 30, 1913	621	80	.....	.....
Thomas Pearsall	April 30, 1913	419	85	.....	.....
Thomas Pearsall	April 30, 1913	448	45	.....	.....
Thomas Pearsall	April 30, 1913	423	1 15	.....	.....
Thomas Pearsall	April 30, 1913	549	65	78	.....
Merrell & Burbank	April 30, 1913	933	11 10	.....	.....
Merrell & Burbank	April 30, 1913	928	6 25	.....	.....
Merrell & Bayles	April 30, 1913	3	1 40	.....	.....
Merrell & Bayles	April 30, 1913	5	4 75	.....	.....
Rudolph Merrell	April 30, 1913	311	27 00	.....	.....
L. L. Huffmire	April 30, 1913	262	3 10	.....	.....
L. L. Huffmire	April 30, 1913	265	35	.....	.....
L. L. Huffmire	April 30, 1913	263	1 35	96	.....
Asel F. Merrell	April 30, 1913	430	85	.....	.....
Asel F. Merrell	April 30, 1913	159	3 08	.....	.....
Asel F. Merrell	April 30, 1913	278	1 23	.....	.....
Asel F. Merrell	April 30, 1913	428	1 48	.....	.....
Asel F. Merrell	April 30, 1913	494	1 28	.....	.....
Asel F. Merrell	April 30, 1913	118	1 30	.....	.....
Asel F. Merrell	April 30, 1913	434	33	.....	.....
Asel F. Merrell	April 30, 1913	266	75	.....	.....
Asel F. Merrell	April 30, 1913	485	2 55	.....	.....
Asel F. Merrell	April 30, 1913	437	73	.....	.....
Asel F. Merrell	April 30, 1913	3	1 27	.....	.....
Asel F. Merrell	April 30, 1913	508	1 50	.....	.....
Asel F. Merrell	April 30, 1913	160	2 78	.....	.....
Asel F. Merrell	April 30, 1913	193	2 98	.....	.....
Asel F. Merrell	April 30, 1913	161	1 70	.....	.....
Asel F. Merrell	April 30, 1913	195	2 12	.....	.....
Asel F. Merrell	April 30, 1913	270	2 20	.....	.....
Asel F. Merrell	April 30, 1913	282	2 38	.....	.....
Asel F. Merrell	April 30, 1913	280	1 00	.....	.....
Asel F. Merrell	April 30, 1913	276	5 70	.....	.....
Asel F. Merrell	April 30, 1913	743	15	.....	.....
Asel F. Merrell	April 30, 1913	864	6 35	.....	.....
Asel F. Merrell	April 30, 1913	863	4 70	.....	.....
Asel F. Merrell	April 30, 1913	877	1 55	.....	.....
Asel F. Merrell	April 30, 1913	168	1 65	.....	.....
Asel F. Merrell	April 30, 1913	170	1 50	.....	.....
Asel F. Merrell	April 30, 1913	484	85	.....	.....
Asel F. Merrell	April 30, 1913	162	4 38	.....	.....
Asel F. Merrell	April 30, 1913	674	70	.....	.....
Asel F. Merrell	April 30, 1913	126	8 40	.....	.....
Asel F. Merrell	April 30, 1913	312	39 85	.....	.....
Asel F. Merrell	April 30, 1913	313	31 50	.....	.....
Asel F. Merrell	April 30, 1913	974	25	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Continued*)

NAME	Date	Lot	Tax	Penalty	Interest
Asel F. Merrell	April 30, 1913	20	$1 35	.....	.....
Asel F. Merrell	April 30, 1913	19	70	.....	.....
Asel F. Merrell	April 30, 1913	3	95	.....	.....
Asel F. Merrell	April 30, 1913	9	2 35	.....	.....
Asel F. Merrell	April 30, 1913	146	1 05	.....	.....
Asel F. Merrell	April 30, 1913	200	1 80	.....	.....
Asel F. Merrell	April 30, 1913	391	50	.....	.....
Asel F. Merrell	April 30, 1913	292	40	.....	.....
Asel F. Merrell	April 30, 1913	535	1 05	.....	.....
Asel F. Merrell	April 30, 1913	488	1 70	.....	.....
Asel F. Merrell	April 30, 1913	316	14 25	.....	.....
Asel F. Merrell	April 30, 1913	982	11 45	.....	.....
C. V. Decker	April 30, 1913	50	30	.....	.....
C. V. Decker	April 30, 1913	444	1 58	.....	.....
C. V. Decker	April 30, 1913	851	1 95	.....	.....
C. V. Decker	April 30, 1913	853	1 80	.....	.....
C. V. Decker	April 30, 1913	870	90	.....	.....
C. V. Decker	April 30, 1913	876	9 60	$3 23	.....
Emma W. Abrams	April 30, 1913	268	50	.....	.....
Emma W. Abrams	April 30, 1913	267	55	21	.....
P. F. Huffmire	April 30, 1913	264	40	08	.....
Winant Huffmire	April 30, 1913	355	1 80	.....	.....
Winant Huffmire	April 30, 1913	495	75	.....	.....
Winant Huffmire	April 30, 1913	562	1 40	79	.....
O. & M. G. Bartow	April 30, 1913	10	4 38	.....	$0 13
Theodore Sprague	May 1, 1913	.....	.....	.....	06
Theodore & Ezra Sprague	May 1, 1913	.....	.....	.....	21
Webb Sprague	May 1, 1913	.....	.....	.....	08
Samuel E. Smith	May 1, 1913	440	65	13	.....
J. Frank Smith	May 1, 1913	441	25	05	.....
J. F. & S. E. Smith	May 1, 1913	385	75	15	.....
E. M. Post	May 2, 1913	526	1 00	.....	.....
E. M. Post	May 2, 1913	520	1 63	.....	.....
E. M. Post	May 2, 1913	516	1 87	.....	.....
E. M. Post	May 2, 1913	514	78	1 06	.....
Alfred Cannon	May 2, 1913	454	20	04	02
Julia Sofield	May 2, 1913	140	6 75	.....	.....
Julia Sofield	May 2, 1913	170	1 10	.....	.....
Ella Sofield	May 3, 1913	90	5 65	.....	.....
Sofield & Fraser	May 3, 1913	154	40	.....	.....
Sofield & Fraser	May 3, 1913	156	20	.....	.....
Sofield & Fraser	May 3, 1913	169	80	.....	.....
Sofield & Fraser	May 3, 1913	168	80	.....	.....
Sofield & Fraser	May 3, 1913	995	26 10	.....	.....
C. S. Sofield	May 3, 1913	34	17	.....	.....
C. S. Sofield	May 3, 1913	28	15	.....	.....
C. S. Sofield	May 3, 1913	522	6 40	.....	.....
C. S. Sofield	May 3, 1913	536	35	.....	.....
C. S. Sofield	May 3, 1913	556	3 80	.....	.....
C. S. Sofield	May 3, 1913	526	5 00	.....	.....
C. S. Sofield	May 3, 1913	523	35	.....	.....
C. S. Sofield	May 3, 1913	110	1 30	.....	.....
C. S. Sofield	May 3, 1913	171	60	.....	.....
C. S. Sofield	May 3, 1913	468	3 00	.....	.....
Henry Van Name	May 3, 1913	56	1 40	28	05
Erastus W. Seaman	May 3, 1913	278	3 80	76	13
William J. Campbell	May 3, 1913	510	1 55	.....	05
W. H. B. Totten	May 6, 1913	19	1 70	24	06
Theodore Johnson	May 12, 1913	39	15	.....	.....
Theodore Johnson	May 12, 1913	38	13	.....	.....
Theodore Johnson	May 12, 1913	426	18	.....	.....
Theodore Johnson	May 12, 1913	35	20	.....	.....
Theodore Johnson	May 12, 1913	731	22	.....	04
David Decker	May 12, 1913	686	1 65	33	08
John Hansen	May 12, 1913	307	2 55	.....	.....
John Hansen	May 12, 1913	34	70	.....	.....
John Hansen	May 12, 1913	69	5 05	.....	.....
John Hansen	May 12, 1913	71	70	1 80	36
James A. Cochrane	May 19, 1913	13	15 30	.....	.....
James A. Cochrane	May 19, 1913	986	18 75	.....	.....
M. & P. M. Van Name	May 19, 1913	12	1 65	.....	.....
M. & P. M. Van Name	May 19, 1913	12½	10	35	08
Est. H. Von Ahnen	May 19, 1913	41	1 60	.....	.....
Est. H. Von Ahnen	May 19, 1913	304	2 85	.....	.....

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TAXES, PENALTY AND INTEREST COLLECTED — (*Concluded*)

NAME	Date	Lot	Tax	Penalty	Interest
Est. H. Von Ahnen	May 19, 1913	519	$0 65	.....	.....
Est. H. Von Ahnen	May 19, 1913	54	75	.....	.....
Est. H. Von Ahnen	May 19, 1913	73	1 00	.....	.....
F. T. Boerum	May 19, 1913	27	63	$0 13	$0 02
Selah T. Clock	May 20, 1913	.....	.....	.....	3 60
John Whittaker	May 20, 1913	231	1 10	22	.....
J. H. Schmeelk, No. 1	May 20, 1913	305	1 10	.....	.....
J. H. Schmeelk, No. 1	May 20, 1913	45	90	.....	.....
J. H. Schmeelk, No. 1	May 20, 1913	49	1 75	.....	12
W. F. Schmeelk	May 20, 1913	30	60	12	03
John D. Merrell	May 20, 1913	869	45	09	.....
H. L. Schmeelk	May 21, 1913	318	1 25	.....	04
Forrester & Hoag	May 21, 1913	347	1 48	.....	.....
Forrester & Hoag	May 21, 1913	353	45	.....	.....
Forrester & Hoag	May 21, 1913	789	2 55	.....	.....
Forrester & Hoag	May 21, 1913	801	90	.....	.....
Forrester & Hoag	May 21, 1913	669	64	.....	.....
Forrester & Hoag	May 21, 1913	874	35	.....	.....
Forrester & Hoag	May 21, 1913	973	90	.....	.....
George E. Forrester	May 21, 1913	361	40	.....	.....
George E. Forrester	May 21, 1913	359	1 05	.....	.....
George E. Forrester	May 21, 1913	517	65	.....	.....
George E. Forrester	May 21, 1913	515	30	.....	.....
John S. Hoag	May 21, 1913	875	20	.....	.....
W. H. Morris	May 23, 1913	276	65	.....	16
Whaley & Thompson	May 28, 1913	93-H	5 05	.....	19
John H. Abrams	May 31, 1913	294	95	19	.....
John H. Abrams	May 31, 1913	295	35	07	.....
Daniel Green	May 31, 1913	798	15	.....	.....
Daniel Green	May 31, 1913	800	65	16	04
John Journeay	June 2, 1913	88	63	13	.....
Est. Sherman Decker	June 2, 1913	22	13	.....	.....
Est. Sherman Decker	June 2, 1913	116	39	.....	.....
Est. Sherman Decker	June 2, 1913	466	1 00	.....	.....
Est. Sherman Decker	June 2, 1913	666	1 10	.....	.....
Est. Sherman Decker	June 2, 1913	480	1 28	.....	.....
Est. Sherman Decker	June 2, 1913	681	83	.....	.....
Est. Sherman Decker	June 2, 1913	687	1 50	.....	.....
Est. Sherman Decker	June 2, 1913	778	88	.....	.....
Est. Sherman Decker	June 2, 1913	780	2 52	.....	.....
George T. Woglom	June 2, 1913	20	92	18	04
A. W. Woglom	June 2, 1913	769	42	.....	.....
A. W. Woglom	June 2, 1913	777	47	17	04
Charles H. Vroom	June 2, 1913	.....	.....	.....	80
William Cooley	June 3, 1913	277	1 33	27	.....
Adolph Johnson	June 13, 1913	Several	22 18	.....	89
George Rinehart	June 30, 1913	432	2 30	.....	46
F. F. Down	July 3, 1913	Several	31 25	.....	.....
F. F. Down	July 3, 1913	Several	24 25	.....	.....
Samuel Thorn	July 29, 1913	105-L	7 25	1 45	.....
James A. Cochrane	July 29, 1913	997	27 10	.....	.....
James A. Cochrane	July 29, 1913	992	12 50	.....	.....
H. W. Behncke	Aug. 5, 1913	31	65	13	14
Mary R. Behncke	Aug. 5, 1913	167	1 45	29	33
F. K. Conant	Aug. 25, 1913	Several	1 88	38	15
F. K. Conant	Aug. 25, 1913	Several	1 25	25	10
Crocker & Allen	Sept. 4, 1913	93	3 88	78	25
Wansor & Whaley	Sept. 4, 1913	84	4 55	91	30
John J. Ferry	Sept. 30, 1913	280	90	18	04
John J. Ferry	Sept. 30, 1913	278	1 00	20	04
John J. Ferry	Sept. 30, 1913	277	4 00	80	34
John J. Ferry	Sept. 30, 1913	279	4 85	97	42
John J. Ferry	Sept. 30, 1913	281	1 30	26	08
Pausch Bros. Oyster Co	Sept. 30, 1913	990	25 00	.....	.....
Pausch Bros. Oyster Co	Sept. 30, 1913	998	50 00	.....	.....
Total	.....	.....	$7,555 11	$129 84	$13 38

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FISHING LICENSES ISSUED DURING FISCAL YEAR, OCTOBER 1, 1912, TO SEPTEMBER 30, 1913

DATE	Name	Address	No.	Kind	Amount
Oct. 1	Newport Fisheries & Cold Storage Co	Newport, R. I.	41	Menhaden..	$25 00
8	Westerly Fish. Corporation	Stonington, Conn..	50	Menhaden..	50 00
May 5	George W. Wilcox	Westerly, R. I.	1	Food fish..	5 00
10	John Daboll	Noank, Conn.	2	Food fish..	5 00
12	F. B. Huntley	Hamburg, Conn.	3	Food fish..	5 00
26	Allen Ashbey	Noank, Conn.	4	Food fish..	5 00
26	C. E. Emmett	Stonington, Conn..	4-A	Food fish..	5 00
28	George B. Rathbun	Noank, Conn.	5	Food fish..	5 00
28	Frank I. Sears	Boston, Mass.	6	Food fish..	5 00
28	Edward Lyons	Keyport, N. J.	7	Menhaden..	25 00
28	Products Mfg. Co	New York City..	8	Menhaden..	50 00
28	Products Mfg. Co	New York City..	9	Menhaden..	50 00
29	Atlantic Phosphate & Oil Corporation	New York City..	10	Menhaden..	50 00
29	Atlantic Phosphate & Oil Corporation	New York City..	11	Menhaden..	50
29	Atlantic Phosphate & Oil Corporation	New York City..	12	Menhaden..	50
29	Atlantic Phosphate & Oil Corporation	New York City..	13	Menhaden..	50 00
29	Atlantic Phosphate & Oil Corporation	New York City..	14	Menhaden..	50 00
29	Atlantic Phosphate & Oil Corporation	New York City..	15	Menhaden..	50 00
June 2	John J. Hines	Keyport, N. J.	16	Food fish..	5 00
2	John J. Hines	Keyport, N. J.	17	Menhaden..	25 00
14	Manuel Clay	Stonington, Conn..	18	Food fish..	5 00
23	Fred Ostman	Stonington, Conn..	19	Food fish..	5 00
25	Atlantic Phosphate & Oil Corporation	New York City..	20	Menhaden..	50 00
25	Atlantic Phosphate & Oil Corporation	New York City..	21	Menhaden..	50 00
25	Atlantic Phosphate & Oil Corporation	New York City..	22	Menhaden..	50 00
25	Atlantic Phosphate & Oil Corporation	New York City..	23	Menhaden..	50 00
25	Atlantic Phosphate & Oil Corporation	New York City..	24	Menhaden..	50 00
28	Atlantic Phosphate & Oil Corporation	New York City..	25	Menhaden..	50 00
25	Atlantic Phosphate & Oil Corporation	New York City..	26	Menhaden..	50 00
25	Atlantic Phosphate & Oil Corporation	New York City..	27	Menhaden..	50 00
25	Atlantic Phosphate & Oil Corporation	New York City..	28	Menhaden..	50 00
25	Atlantic Phosphate & Oil Corporation	New York City..	29	Menhaden..	50 00
25	Atlantic Phosphate & Oil Corporation	New York City..	30	Menhaden..	25 00
25	Atlantic Phosphate & Oil Corporation	New York City..	31	Menhaden..	50 00
25	Atlantic Phosphate & Oil Corporation	New York City..	32	Menhaden..	50 00
25	Atlantic Phosphate & Oil Corporation	New York City..	33	Menhaden..	50 00
25	Atlantic Phosphate & Oil Corporation	New York City..	34	Menhaden..	50 00
30	Palmer Brothers	Noank, Conn.	35	Food fish..	5 00
30	E. A. Main	Noank, Conn.	36	Food fish..	5 00
30	Leonard E. Allyn	Mystic, Conn.	37	Food fish..	5 00
July 2	W. P. Rathbun	Noank, Conn.	38	Food fish..	5 00
7	Albert E. Noyes	New London, Conn	39	Food fish..	5 00
29	H. C. Sickler	Greenport, N. Y.	40	Menhaden..	50 00
Aug. 5	Wilcox Fertilizer Co	Stonington, Conn..	41	Menhaden..	50 00
5	Wilcox Fertilizer Co	Stonington, Conn..	42	Menhaden..	50 00
5	Wilcox Fertilizer Co	Stonington, Conn..	43	Menhaden..	50 00
9	James Miller	Perth Amboy, N. J.	44	Food fish..	5 00
12	George E. Allison	Stonington, Conn..	45	Food fish..	5 00
12	Westerly Fish Corporation	Westerly, R. I.	46	Food fish..	5 00
21	E. D. Clark	Stonington, Conn..	47	Food fish..	5 00
29	Charles G. Eldridge	Stonington, Conn..	48	Food fish..	5 00
Sept. 2	B. M. Latham	New London, Conn	49	Food fish..	5 00
24	G. H. Bennett	.....	50	Food fish..	5 00
	Total.	.....	.....	.....	$1,560 00

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LOBSTER LICENSES ISSUED DURING FISCAL YEAR, OCTOBER 1, 1912, TO SEPTEMBER 30, 1913

DATE	Name	Address	No.	Amount
Mar. 5	George Dennison	Mystic, Conn	1	$20 00
10	James Smith	Noank, Conn	2	15 00
14	W. B. Chapman	Groton, Conn	3	15 00
14	Frank Smith	Noank, Conn	4	15 00
18	Manuel Perry	Stonington, Conn	5	20 00
24	Charles R. Hill	Groton, Conn	6	20 00
24	George S. Main	Noank, Conn	7	15 00
29	Edgar A. Main	Noank, Conn	8	20 00
April 4	J. F. Mather, Jr	Groton, Conn	9	15 00
10	Frank Latham	Stonington, Conn	10	15 00
10	S. B. Wilcox	Noank, Conn	11	20 00
14	J. H. Chapman	Groton, Conn	12	20 00
14	Joseph Perry	Groton, Conn	13	15 00
19	R. A. Lamb	Noank, Conn	14	15 00
24	W. P. Latham	Noank, Conn	15	20 00
May 5	E. D. Woodmansee	Noank, Conn	16	15 00
5	Ira Latham	Stonington, Conn	17	15 00
5	Manuel Maderia	Stonington, Conn	18	15 00
5	Joseph Bell	New London, Conn	19	20 00
5	L. E. Paterson	Noank, Conn	20	15 00
5	O. W. Biebe	Noank, Conn	21	20 00
5	Manuel Pont	Stonington, Conn	22	15 00
8	Joye Pasheco	Stonington, Conn	23	20 00
8	Joseph Paul	Stonington, Conn	24	20 00
8	F. W. Morgan	Noank, Conn	25	20 00
9	E. C. Buddington	Groton, Conn	26	20 00
10	Manuel Lewis	Stonington, Conn	27	20 00
10	A. V. Morgan	Noank, Conn	28	20 00
10	Richard H. Perkins	Groton, Conn	29	20 00
12	Allen Ashbey	Noank, Conn	30	20 00
12	E. F. Davis	Noank, Conn	31	20 00
17	C. H. Mitchell	Mystic, Conn	32	20 00
24	Frank Braga	Stonington, Conn	33	20 00
24	J. S. Sistare	Noank, Conn	34	20 00
June 2	Frank C. Joseph	Stonington, Conn	35	15 00
2	J. S. Eccleston	Mystic, Conn	36	20 00
2	Manuel Pont	Stonington, Conn	37	15 00
7	S. M. Coles	Noank, Conn	38	20 00
9	W. F. Holiday	Mystic, Conn	39	20 00
13	Anton DeCosta	New London, Conn	40	15 00
13	F. N. Ashbey	Noank, Conn	41	35 00
17	Moses A. Fish	Noank, Conn	42	15 00
18	Ira & Charles Edwards	Waterford, Conn	43	20 00
18	Charles M. Edwards	Waterford, Conn	44	20 00
18	W. H. Wilcox	Stonington, Conn	45	15 00
23	John Daboll	Noank, Conn	46	20 00
23	Eugene Bogue	Mystic, Conn	47	20 00
23	John Lamb	Noank, Conn	48	15 00
26	Palmer Brothers	Noank, Conn	49	20 00
26	Walter Elicox	Stonington, Conn	50	20 00
30	Sylvester Fowler	Noank, Conn	51	15 00
July 1	Herman Fisher	Mystic, Conn	52	15 00
1	Manuel Perry	New London, Conn	53	20 00
1	Cornelius Fowler	Noank, Conn	54	15 00
7	Manuel Hodricks	Stonington, Conn	55	20 00
7	Joseph Silva	New London, Conn	56	15 00
15	Frank Maria	New London, Conn	57	20 00
28	C. J. Beebe	New London, Conn	58	15 00
Aug. 6	C. Christensen	Noank, Conn	59	25 00
Sept. 11	F. W. Buddington	Noank, Conn	60	20 00
	Total		....	$1,100 00

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CERTIFIED COPIES OF LEASES, OCTOBER 1, 1912, TO SEPTEMBER 30, 1913

Name	Date	Amount
H. W. Schmeelk Oyster Co	Feb. 4, 1913	$3 00
Bedell & Amberman	Feb. 10, 1913	2 00
Wm. M. Schmeelk	Feb. 14, 1913	1 00
John F. Quigley	Aug. 11, 1913	1 00
Modern Oyster Co	Sept. 3, 1913	1 00
		$8 00

RECORDING FEES, OCTOBER 1, 1912, TO SEPTEMBER 30, 1913

Name	Date	Amount
Polworth & Elsworth	Oct. 18, 1912	$2 00
Sealshipt Oyster System	Oct. 18, 1912	1 00
John I. Merrell	Oct. 28, 1912	1 00
New York Oyster Co	Nov. 1, 1912	1 00
New York Oyster Co	Nov. 8, 1912	2 50
Jesse E. Still	Nov. 8, 1912	25
New York Oyster Co	Nov. 26, 1912	5 00
New York Oyster Co	Dec. 20, 1912	1 00
Alexander Frazer Co	Dec. 21, 1912	2 00
Androvette & Thompson	Feb. 11, 1913	12 00
D. & H. Oyster Co	Feb. 13, 1913	1 00
William F. Hoyt	Feb. 26, 1913	2 00
Charles Bogardus, Jr	Mar. 6, 1913	1 00
S. A. Still	Mar. 13, 1913	1 00
New York Oyster Co	Mar. 15, 1913	25
Fletcher Decker	Mar. 21, 1913	1 00
Sealshipt Oyster System	Mar. 27, 1913	1 00
Clarence De Hart	April 5, 1913	25
John I. Merrell	April 16, 1913	25
Clarence De Hart	April 20, 1913	25
Pausch Bros. Oyster Co	April 22, 1913	75
R. W. & W. W. La Forge	April 28, 1913	1 00
Robert Lee	April 28, 1913	1 00
New York Oyster Co	April 29, 1913	2 00
W. H. B. Totten	May 6, 1913	1 00
Alexander C. Frazer	May 10, 1913	2 00
Clarence De Hart	May 13, 1913	2 00
George M. Still	May 20, 1913	25
Alexander C. Frazer	May 20, 1913	1 00
John I. Merrell	May 28, 1913	25
New York Oyster Co	June 5, 1913	25
New York Oyster Co	June 17, 1913	7 75
John I. Merrell	June 18, 1913	1 00
New York Oyster Co	June 30, 1913	1 50
William F. Cochrane	July 2, 1913	2 00
George M. Still	July 2, 1913	1 00
Pausch Bros. Oyster Co	July 2, 1913	3 00
F. F. Downs	July 2, 1913	1 00
Christian Walle	July 8, 1913	1 00
New York Oyster Co	July 8, 1913	1 25
Azel F. Merrell	July 8, 1913	50
P. J. Cochrane	July 8, 1913	1 00
Henry S. Marshall	July 9, 1913	1 00
W. H. Lockwood	July 16, 1913	1 25

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RECORDING FEES, OCTOBER 1, 1912, TO SEPTEMBER 30, 1913 — (*Concluded*)

Name	Date	Amount
New York Oyster Co	July 24, 1913	$1 00
John I. Merrell	July 24, 1913	1 00
Oyster Bay Oyster Co	July 29, 1913	2 00
Mills & Ronik	July 30, 1913	1 00
James A. Deveaugh	Aug. 5, 1913	1 00
Richard M. Ellard	Aug. 5, 1913	2 00
New York Oyster Co	Aug. 15, 1913	50
John I. Merrell	Aug. 15, 1913	1 00
Modern Oyster Co	Sept. 3, 1913	2 00
William J. Mills	Sept. 3, 1913	1 25
Andrew Radel	Sept. 13, 1913	3 00
Thomas Hassett, Jr	Sept. 19, 1913	25
		$92 00

RECEIPTS OF THE BUREAU OF MARINE FISHERIES FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 1913

	Rentals	Taxes	Penalty	Interest	License fee	Certificates	Recording fee	Total
Oct. 31, 1912	$2,956 41	$2 50	.....	$0 36	$75 00	.....	$4 00	$3,038 27
Nov. 30, 1912	5,021 79	63	$0 13	10	.....	.....	8 75	5,031 40
Dec. 31, 1912	1,074 25	.....	.....	1 70	.....	.....	3 00	1,078 95
Jan. 31, 1913	24 83	4 35	.....	.....	.....	.....	.....	29 18
Feb. 28, 1913	2,539 13	4,225 02	39 80	.....	.....	$6 00	15 00	6,824 95
Mar. 31, 1913	757 23	2,276 63	33 84	.....	135 00	.....	4 25	3,206 95
April 30, 1913	272 39	653 76	42 55	1 38	120 00	.....	5 50	1,095 58
May 31, 1913	1,549 50	151 28	6 17	5 42	800 00	.....	6 50	2,518 87
June 30, 1913	231 63	112 88	75	2 23	1,105 00	.....	10 50	1,462 99
July 31, 1913	1,708 60	102 35	1 45	.....	190 00	.....	18 00	2,020 40
Aug. 31, 1913	39 15	5 23	1 05	72	200 00	1 00	4 50	251 65
Sept. 30, 1913	363 00	20 48	4 10	1 47	35 00	1 00	12 00	437 05
Total	$16,537 91	$7,555 11	$129 84	$13 38	$2,660 00	$8 00	$92 00	$26,996 24

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UNPAID TAXES FOR THE YEAR 1912

NAME	Lot	Location	Tax	Penalty
William H. Abrams	280	Jamaica bay	$0 35	$0 07
Andrew Anderson	424	Raritan bay	70	14
John M. Bell	269	East Chester bay	2 40	48
John M. Bell	268	Long Island sound	1 70	34
Oswall T. Bergen	272	Long Island sound	2 80	56
Bell, Fordham & Bell	89	Long Island sound	3 20	64
Andrew M. Cannon	45	Raritan bay	18	03
Andrew M. Cannon	735	Raritan bay	55	11
George E. Call	41	Long Island sound	18 73	3 75
Bernard Collins	264	Long Island sound	40	08
Bernard Collins	233	Long Island sound	70	14
Est. Nathaniel Carman	492	Jamaica bay	1 45	29
Est. Nathaniel Carman	116	Jamaica bay	15	03
Est. Nathaniel Carman	115	Jamaica bay	60	12
Oscar L. Decker	37	Raritan bay	43	09
Walter C. Denton	287	Jamaica bay	2 85	57
Walter C. Denton	344	Jamaica bay	1 10	22
Henry W. Davis	343	Jamaica bay	2 65	53
Henry W. Davis	506	Jamaica bay	1 40	28
Henry W. Davis	329	Jamaica bay	1 85	37
Dennis Dougherty	286	East Chester bay	1 45	29
Dennis Dougherty	288	East Chester bay	2 65	53
John O. Fordham	229	Pelham bay	4 55	.....
John O. Fordham	232	Pelham bay	2 80	.....
John O. Fordham	305	Pelham bay	1 15	.....
John O. Fordham	231	Pelham bay	1 45	.....
John O. Fordham	236	Pelham bay	3 25	.....
John O. Fordham	97	Long Island sound	16 55	.....
W. R. Fordham	263	Pelham bay	35	07
W. R. Fordham	262	Pelham bay	1 60	32
W. R. Fordham	261	Pelham bay	1 55	31
Thomas W. Holbert	605	Raritan bay	45	09
Thomas W. Holbert	607	Raritan bay	1 83	37
Otto D. & Herman Housman	324	Long Island sound	25 00	5 00
Adolph Johnson	Several	Long Island sound	.....	4 44
Antoinette S. Lamb	32	Long Island sound	19 85	3 97
Fred Lundy	322	Long Island sound	5 25	1 05
Thomas S. Merrell	527	Raritan bay	1 28	.....
Thomas S. Merrell	525	Raritan bay	1 03	.....
Thomas S. Merrell	523	Raritan bay	22	.....
Thomas S. Merrell	533	Raritan bay	1 35	.....
Thomas S. Merrell	535	Raritan bay	93	.....
Thomas S. Merrell	844	Raritan bay	75	.....
Thomas S. Merrell	693	Raritan bay	60	.....
Thomas S. Merrell	222	Raritan bay	3 70	.....
Thomas S. Merrell	148-A	Raritan bay	1 20	.....
Thomas S. Merrell	529	Raritan bay	4 03	.....
Lilly Merrell	677	Raritan bay	50	.....
Abram & William Manee	806	Raritan bay	85	17
Abram & William Manee	814	Raritan bay	1 65	33
Abram & William Manee	816	Raritan bay	75	15
Abram & William Manee	819	Raritan bay	1 10	22
Abram & William Manee	832	Raritan bay	28	06
Abram Manee	808	Raritan bay	1 10	22
Abram Manee	815	Raritan bay	1 20	24
Abram Manee	817	Raritan bay	50	10
Abram Manee	461	Raritan bay	50	10
Charles McCrodden	221	Jamaica bay	2 35	47
Charles McCrodden	606	Jamaica bay	2 25	45
John H. McCrodden	517	Jamaica bay	1 15	23
David Price	110	Raritan bay	25	05
David Price	30	Raritan bay	45	09
Elmer Price	274	Raritan bay	45	09
Elmer Price	260	Raritan bay	75	15
Elmer Price	264	Raritan bay	30	06
Elmer Price	268	Raritan bay	40	08
Elmer Price	250	Raritan bay	38	08
Elmer Price	244	Raritan bay	20	04
Elmer Price	272	Raritan bay	50	10
Elmer Price	712	Raritan bay	35	07
Elmer Price	6	Raritan bay	25	05

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UNPAID TAXES FOR THE YEAR 1912 — (*Concluded*).

NAME	Lot	Location	Tax	Penalty
Nils Pederson	134	Raritan bay	$1 07	$0 21
Purity Blue Point Oyster Co	Several	Long Island sound	60 00	12 00
John Price, Jr	244	East Chester bay	6 20	1 24
Price & Merrell	4	Raritan bay	1 15	23
Joseph Ryder	283	Jamaica bay	2 25	45
W. R. Rinehart	635	Jamaica bay	70	14
W. R. Rinehart	636	Jamaica bay	80	16
F. T. Sprague	409	Raritan bay	63	13
F. T. Sprague	413	Raritan bay	60	12
John S. Sleight	715	Raritan bay	1 45	29
R. Lawrence Smith	29	Long Island sound	18 70	3 74
R. Lawrence Smith	33	Long Island sound	19 67	3 93
E. Marshall Smith	30	Long Island sound	18 90	3 78
E. Marshall Smith	31	Long Island sound	18 30	3 66
J. & D. K. Simonson	51	Raritan bay	35	.....
J. & D. K. Simonson	49	Raritan bay	45	.....
S. B. Sprague	65	Raritan bay	1 30	26
David Simonson	822	Raritan bay	70	14
David Simonson	825	Raritan bay	35	07
George T. Soper	413	Jamaica bay	1 80	36
George T. Soper	614	Jamaica bay	3 10	62
George T. Soper	420	Jamaica bay	1 60	32
George T. Soper	611	Jamaica bay	1 20	24
George T. Soper	437	Jamaica bay	1 45	29
W. T. Schmeelk	98	Jamaica bay	2 30	.....
W. H. Sellars	596	Jamaica bay	1 80	36
M. H. Sickman	599	Jamaica bay	1 80	36
A. K. J. H. & E. S. Tilley	23	Smithtown bay	11 83	2 37
J. M. Van Wyck	398	Raritan bay	80	16
Richard Van Houghten	525	Jamaica bay	3 70	74
W. R. Wilson	518	Jamaica bay	3 20	64
W. R. Wilson	520	Jamaica bay	9 00	1 80
Dennis F. Ward	290	East Chester bay	1 85	37
Dennis F. Ward	292	East Chester bay	2 25	45
Total	.....	.....	$368 72	$68 51

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ANNUAL REPORT

OF THE

FISH CULTURIST

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Photo by J. A. Glenn.

Night scapping for pike perch, Scriba Creek, Constantia, N. Y.

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ANNUAL REPORT

OF THE

FISH CULTURIST

Hon. THOMAS H. GUY, *Deputy Commissioner, Division of Fish and Game:*

SIR.— The report upon the fish cultural work of the Conservation Commission for the fiscal year ended September 30, 1913, is herewith presented.

With this account are included reports from the foremen of the nine hatcheries operated during the year, the results of inspection trips to inquire into the condition of the stations, the methods in use in hatching and caring for the fish, the habits, diseases, mode of capture, improvements in the routine of developing eggs and fish and such others matters as make for the increased efficiency of the service.

The stations have distributed the unusual number of 1,287,255,-120 fish, and related food species, during the year. This shows an increase of 556,820,187 over the output of the preceding year, and is due very largely to the enormous gain in hatching and planting marine food fishes.

Among the 39 species of water animals, chiefly fish, which were propagated and planted by the Commission in 1913, are included shad, river herring, whitefish, lake herring, tullibee, four species of trout, smelt, maskalonge, pikeperch, black bass, sea bass, tomcod, flatfish, lobster and edible crab. The establishment of the two auxiliary hatcheries at Montauk and Cold Spring Harbor has greatly augmented the yield of the Long Island station, and if a number of additional field stations could be added, the gain would be still more pronounced.

There are now at the stations the following brood fish: Adirondack hatchery, 270 brook trout; Caledonia hatchery, 37,500 brown and rainbow trout of various ages from 9 months to 8 years; Cold Spring Harbor hatchery, 1,200 brook trout, 100 brown

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trout, 3,000 rainbow trout; Delaware hatchery, 4,950 brook trout, ranging from fingerlings to 3 years old; Linlithgo, 120 black bass, 50 calico bass.

The money value of the fish distributed in 1913 was at least $250,000, not including the brood stock.

The experiment in propagating short-nosed sturgeon in ponds at Linlithgo will be discontinued, owing to the fact that, although the fish evidently spawn in the ponds, no fry have yet been discovered. It is probable that the sturgeon matures only a few eggs at a time, and that the fry, if any develop, are destroyed by other inhabitants of the pond which it is impossible to exclude. There is no difficulty whatever in keeping the sturgeon alive, and in good condition; but the only feasible method of obtaining eggs and milt is so cruelly destructive as to be without warrant in practical fish culture.

The rearing of shad in ponds has been remarkably successful. In a pond of less than one-fifth of an acre in area the foreman of the Linlithgo station raised 500,000 fingerlings in the summer of 1913. Many of the shad when liberated measured 4 inches in length, and the only dead shad found in the pond were about a dozen which were stabbed and killed by the giant waterbug, *Belostoma americanum*. The cost of food for the number of shad fingerlings mentioned was scarcely more than $20. The food consisted chiefly of water meal.

During the fiscal year, construction work was begun at the new station at Ogdensburg, N. Y., and preliminary surveys and examinations were made for the proposed hatchery in Warren county.

Experience at the two stations which propagate the small-mouthed black bass demonstrates that it is very difficult to rear the fry to fingerling age without serious losses and with uncertain results as to the annual yield. The bass, very early in life, show a partiality for moving natural food, such as insect larvae and small fish. It is sometimes almost impossible to provide this food in sufficient quantities to insure a rapid growth. At the Linlithgo station there is an abundance of fly larvae which the bass take freely, and we rear river alewives and buckeye shiners (*Notropis atherinoides,* Raf.) in very large quantities, usually

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sufficient to bring the bass to a proper size for distribution as fingerlings. The fingerling bass at Linlithgo will also feed upon thin strips of white-meated fish, usually suckers from which the scales have been removed. In spite of all efforts the percentage of bass carried from the fry stage to fingerling age is always small, and serious losses occur during the season on account of bass enemies, low water, and excessive growth of algae.

Occasionally, as will be seen from the statements given by Foreman Miller and his predecessor at the Oneida station, young bass disappear from a rearing pond very mysteriously. At one time a fine lot of bass were placed in a small pond near the hatchery at Constantia, and nearly all of them were missed suddenly. When the pond was emptied it was found that worms and crawfish had bored through the ground from Frederick creek into the bass ponds, making small tunnels through which the fish escaped.

The later work of fish distribution was very greatly hampered for the want of the fish car Adirondack which was broken down in mid-summer and sent to the shops for repairs. These necessary changes were so extensive that it was impossible to make them before the season closed.

Our State, and this is true of practically all the east coast States having shell fisheries, has done nothing in the way of experiments in the artificial culture of oysters and other shellfish. The United States Bureau of Fisheries has investigated the artificial culture of oysters during many seasons, and has now developed methods which are successful from a scientific point of view, but which are not yet capable of adoption for commercial advantage. It is to be hoped that this matter, so important to our Commonwealth, will soon receive the consideration which it merits.

HATCHERY EXPENDITURES.

Maintenance fund	$60,043 45
Official salaries	4,000 00
Graded employees	9,495 00
Total	$73,538 45

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BROOD FISH AT STATIONS.

Adirondack	270	adult brook trout.
Caledonia	2,000	fingerling brown trout.
	6,000	yearling brown trout.
	8,500	adult brown trout.
	5,000	yearling rainbow trout.
	4,000	2-year-old rainbow trout.
	5,000	3-year-old rainbow trout.
	7,000	4 to 8-year-old rainbow trout.
Cold Spring Harbor	1,200	brook trout.
	100	brown trout.
	3,000	rainbow trout.
Delaware	2,000	fingerling brook trout.
	1,100	brook trout, 18 months.
	1,450	brook trout, 2 year old.
	400	brook trout, 3 year old.
Linlithgo	120	adult black bass.
	50	adult calico bass.

FISH DISTRIBUTED BY STATE HATCHERIES.

Short-nosed sturgeon.	Brown trout.
Bullhead or catfish.	Rainbow trout.
Chub.	Lake trout.
Lake chub.	Brook trout.
Buckeye shiner.	Smelt.
Flat shiner.	Maskalonge.
Pin shiner.	Pike.
Horned dace.	Pikeperch.
Eel.	Yellow perch.
Shad	Black bass, small mouthed.
River herring.	Black bass, large mouthed.
Frostfish.	Calico bass.
Whitefish.	Sunfish.
Little whitefish.	Long-eared sunfish.
Lake herring.	Rock bass.
Tullibee.	Silver bass.

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Sea bass.	Lobster.
Scup.	Blue crab.
Tomcod.	Freshwater shrimp.
Flatfish.	

FISH DISTRIBUTED IN 1913 BY STATIONS

ADIRONDACK

Brook trout fry	538,000	
Brook trout fingerlings	938,300	
Brook trout adults	10	
		1,476,310
Lake trout fry	90,000	
Lake trout fingerlings	29,500	
		119,500
Brown trout fry	5,000	
		5,000
Rainbow trout fingerlings	5,000	
		5,000
Whitefish fry		4,410,000
Little whitefish fry		800,000
Frostfish fry		253,000
		7,068,810

BATH

Brook trout fry	105,000	
Brook trout fingerlings	389,500	
		494,500
Lake trout fingerlings	80,000	
		80,000
Brown trout fry*	27,000	
Brown trout fingerlings	88,000	
		115,000
Rainbow trout fingerlings†		78,500
		768,000

* The eggs from which these fish were developed were furnished by the Caledonia Hatchery.
† From eggs furnished by Caledonia Hatchery.

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CALEDONIA

Brook trout fry	263,000	
Brook trout fingerlings	464,600	
		727,600
Lake trout fingerlings		5,000
Brown trout fry*	125,000	
Brown trout fingerlings	231,500	
Brown trout adults	30	
		356,530
Rainbow trout fry†	145,000	
Rainbow trout fingerlings	173,000	
Rainbow trout adults	56	
		318,056
Whitefish fry (eggs from Fulton Chain)		5,752,000
Lake herring fry		17,241,000
Maskalonge fry‡		3,230,000
Pikeperch fry§		10,375,000
Black bass adults		225
Shrimp adults		2,000
		38,007,411

CHAUTAUQUA

Brook trout fingerlings**	142,000
Whitefish fry	750,000
Lake herring fry	15,500,000
Maskalonge fry***	2,625,000
Yellow perch fry	250,000
	19,267,000

* 400,000 eyed eggs were sent to Bath and Delaware hatcheries for development and distribution.
† 357,000 eyed eggs were divided between the Bath and Delaware hatcheries for development and distribution.
‡ The eggs from which these fry were developed were furnished by the Chautauqua hatchery.
§ The eggs which produced these fry were obtained from the Oneida hatchery.
** 243,000 Brook trout fingerlings were sent to Caledonia hatchery for distribution from there, the Jamestown, Chautauqua & Lake Erie Railroad having refused free transportation from the Chautauqua hatchery.
*** 3,250,000 eyed eggs were sent to Caledonia hatchery for development and distribution from that station, and are not included in this report.

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COLD SPRING HARBOR

Brook trout fry*	118,000	
Brook trout fingerlings	62,500	
		180,500
Brown trout fry	5,000	
Brown trout fingerlings	11,000	
		16,000
Rainbow trout fry	10,000	
Rainbow trout fingerlings	17,000	
Rainbow trout adults	50	
		27,050
Whitefish fry		75,000
Smelt fry		116,077,500
Pikeperch fry		2,000,000
Sea bass fry		20,742,800
Tomcod fry		113,212,000
Flatfish fry		106,700,000
Lobster fry		11,847,255
Blue crab eggs		520,000,000
		890,878,105

DELAWARE

Brook trout fry	304,000	
Brook trout fingerlings	377,500	
		681,500
Brown trout fry†	120,000	
Brown trout fingerlings	65,000	
		185,000
Rainbow trout fry‡	25,000	
Rainbow trout fingerlings	82,000	
		107,000
		973,500

*This total does not include the following eyed eggs of Brook trout: To Adirondack hatchery 1,540,000, Bath 300,000, Caledonia 500,000 — a total of 2,340,000.
† The Brown trout were produced from eggs furnished by the Caledonia hatchery.
‡ The Rainbow trout were developed from eggs obtained from Caledonia hatchery.

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FULTON CHAIN

Brook trout fry	162,000	
Brook trout fingerlings	200,000	
Brook trout adults	9	
		362,009
Lake trout fry	30,000	
Lake trout fingerlings	19,000	
		49,000
Whitefish		8,820,000
Frostfish		147,000
		9,378,009

LINLITHGO

Shad fry*	5,920,000	
Shad fingerlings	500,000	
		6,420,000
River herring		35,000,000
Brook trout fry	148,000	
Brook trout fingerlings	188,500	
		336,500
Lake herring fry		14,000,000
Pikeperch fry†		12,500,000
Yellow perch fry		5,000,000
Black bass, small mouth, fry	4,900	
Black bass, adv. fry	8,600	
Black bass fingerlings	1,325	
		14,825
Calico bass fingerlings	750	
Calico bass yearlings	150	
Calico bass adults	304	
		1,204
Sunfish fingerlings		600
		73,273,129

* Of these 840,000 eggs were presented to the Commission by Hon. N. R. Buller, Pennsylvania Commissioner of Fisheries.

† These fry were produced from eggs shipped from the Oneida hatchery.

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Photo by J. A. Gurn.

Fishing with dip nets for pike perch, Scriba Creek, Constantia, N. Y.

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ONEIDA

Catfish fingerlings	13	
Catfish adults	435	
		448
Chub fingerlings		16
Lake chub adults		6
Buckeye shiner fingerlings		26,000
Flat shiner adults		6
Pin shiner fingerlings		6
Horned dace fingerlings		6
Eel adults		3
Lake herring fry		19,250,000
Tullibee fry		59,250,000
Pike adults		6
Maskalonge adults		2
Pikeperch fry	94,691,250	
Pikeperch fingerlings	25	
Pikeperch adults	16	
		94,691,291
Pikeperch eggs exchanged*		23,625,000
Yellow perch fry	50,000,000	
Yellow perch fingerlings	307,750	
Yellow perch adults	12	
		50,307,762
Black bass, small mouth, fry	423,500	
Black bass, small mouth, fingerlings	66,300	
Black bass, small mouth, adults	20	
		489,820
Black bass, large mouth, fingerlings	6	
Black bass, large mouth, adults	2	
		8
Calico bass fingerlings	6	
Calico bass adults	6	
		12
Rock bass fingerlings	12	
Rock bass adults	31	
		43

* In addition to these there were furnished to other hatcheries for development and distribution 45,375,000 eggs.

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Sunfish adults		693
Silver bass fingerlings	20	
Silver bass adults	6	
		26
Lawyer adults		2
		247,641,156

FISH DISTRIBUTION IN 1913 BY STATIONS

Adirondack	7,068,810
Bath	768,000
Caledonia	38,007,411
Chautauqua	19,267,000
Cold Spring Harbor	890,878,105
Delaware	973,500
Fulton Chain	9,378,009
Linlithgo	73,273,129
Oneida	247,641,156
	1,287,255,120

FISH DISTRIBUTION, 1911-1913

	1911	1912	1913
Adirondack	7,416,877	4,610,059	7,068,810
Bath	1,020,461	1,274,545	768,000
Caledonia	49,140,150	30,132,750	38,007,411
Chautauqua	23,221,725	14,020,100	19,267,000
Cold Spring Harbor	347,650,400	401,554,422	890,878,105
Delaware	821,500	994,517	973,500
Fulton Chain	5,201,050	7,467,010	9,378,009
Linlithgo	25,657,983	49,436,379	73,273,129
Oneida	236,318,248	220,945,151	247,641,156
	701,448,394	730,434,933	1,287,255,120

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Photo by J. A. Glenn.

Emptying trap net for pike perch. Oneida Lake.

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FISH DISTRIBUTION BY SPECIES

Catfish fingerlings	13
Catfish adults	435
Chub fingerlings	16
Lake chub adults	6
Buckeye shiner fingerlings	26,000
Flat shiner adults	6
Pin shiner fingerlings	6
Horned dace fingerlings	6
Eel adults	3
Shad fry	5,920,000
Shad fingerlings	500,000
River herring fry	35,000,000
Frostfish fry	400,000
Whitefish fry	19,807,000
Little whitefish fry	800,000
Lake herring fry	65,991,000
Tullibee fry	59,250,000
Brown trout fry	282,000
Brown trout fingerlings	395,500
Brown trout adults	30
Rainbow trout fry	180,000
Rainbow trout fingerlings	355,500
Rainbow trout adults	106
Lake trout fry	120,000
Lake trout fingerlings	133,500
Brook trout fry	1,638,000
Brook trout fingerlings	2,762,900
Brook trout adults	19
Smelt fry	116,077,500
Pike adults	6
Maskalonge fry	5,855,000
Maskalonge adults	2
Calico bass fingerlings	756
Calico bass yearlings	150
Calico bass adults	310
Rock bass fingerlings	12
Rock bass adults	31

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Sunfish fingerlings	600
Sunfish adults	693
Silver bass fingerlings	20
Silver bass adults	6
Small-mouthed black bass fry	428,400
Small-mouthed black bass adv. fry	8,600
Small-mouthed black bass fingerlings	67,625
Small-mouthed black bass adults	245
Large-mouthed black bass fingerlings	6
Large-mouthed black bass adults	2
Pikeperch eggs	23,625,000
Pikeperch fry	119,566,250
Pikeperch fingerlings	25
Pikeperch adults	16
Yellow perch fry	55,250,000
Yellow perch fingerlings	307,750
Yellow perch adults	12
Sea bass fry	20,742,800
Tomcod fry	113,212,000
Lawyer adults	2
Flatfish fry	106,700,000
Lobster fry	11,847,255
Blue crab (eyed eggs)	520,000,000
Freshwater shrimp	2,000
	1,287,255,120

THE HATCHERIES

ADIRONDACK STATION

When I took charge of this station, July 15, 1913, there were approximately 200,000 fingerling trout in the troughs. These fish were in good condition, but small for their age, probably from overcrowding at the time when they were beginning to feed.

We finished shipping the trout applied for during the first week in August. The number of applications filled during the season

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was 502. The details of the shipments will be found elsewhere in the report.

The gasoline engine and pump which were installed in 1912 have not proved a success, and cannot be depended upon to furnish a continuous flow of water, which is essential to the hatchery work.

The races and rearing ponds are in bad condition, and cannot be used to any advantage unless repaired or rebuilt. There need not be so many races and ponds for the water supply is not sufficient to fill both the house and the races as now arranged.

The hatchery is very much in need of painting, and also the dwelling house and other buildings.

A retaining wall should be built along both sides of the brook which runs through the grounds, as the piling put in to support the banks is in bad condition and allows the water to undermine them.— *Reported by William H. Burke, temporarily in charge.*

REPORT OF EGG COLLECTING SEASON OF 1912 — ADIRONDACK HATCHERY

BROOK TROUT*

WHEN RECEIVED OR TAKEN	Number of eggs	Where from	Ripe males	Ripe females	Water morn.	Temp. night
Oct. 14–Nov. 30....	288,000	Local waters.....	154	135	50 36	50 36
		LAKE TROUT				
Oct. 11–Nov. 17....	182,000	Local waters.....	86	72	50 40	50 40
		BROWN TROUT				
Nov. 1–8.....	14,000	Local waters.....	4	3	40 40	40 40
		WHITEFISH †				
Nov. 5–18.....	2,646,000	Local waters.....	165	161	40 40	40 40
		LITTLE WHITEFISH				
Nov. 23–Dec. 9....	4,147,200	Chateaugay L.....	1,500	950	.....	.....
		FROSTFISH				
Nov. 12–17.....	299,000	Local waters.....	300	296	40 40	40 40

* From the Cold Spring Harbor hatchery, Dec. 10 to 13, were received 1,540,000 eyed eggs of Brook trout. From the Massachusetts Commission on fisheries and game, Sandwich, Mass., 300,000 eyed eggs were received Dec. 20.

† On Nov. 16 were received from the Fulton Chain hatchery 2,520,000 Whitefish eggs.

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BATH STATION

With the exception of a little gill inflammation in the early season, which was soon overcome by the usual salt baths, our fish have been free from diseases of all kinds. We have, at the end of the first week in October, brook trout measuring 4½ inches in length from eggs laid down in the hatchery in December, 1912.

The work of collecting eggs in Lake Keuka was disappointing. Lake trout that were not ready to spawn would remain in the same condition for days when penned up. We remedied this by putting them in a dark box sunk in the lake.

Catches of trout in Pleasant Valley stream were very large. This stream contains a large number of water snakes which destroy a great many trout.

Early fishing in Lake Keuka for lake trout was exceptionally good.

Our water supply is collected entirely from springs, and has a temperature of 50 degrees, which varies only 2 degrees during the year. The egg hatching period is about 55 days.

I must again call attention to the need of purchasing 5 acres of land which contain the large springs forming the principal water supply of this hatchery. Cattle, hogs and sheep pollute the water of these springs which would otherwise be ideal for trout culture.— *Reported by Henry Davidson, Foreman, Bath, N. Y.*

CALEDONIA STATION

The results of work at this station have been unusually good during the past year. In addition to the large distribution of fish (recorded elsewhere) the station furnished 750,000 eyed eggs of brown trout and rainbow trout to the hatcheries at Margaretville and Bath, 7,000 eyed rainbow trout eggs to Ithaca Conservatory and 33,175,000 green eggs of lake herring to Constantia and Linlithgo stations. We collected also 225 black bass from the western widewaters of the Erie canal.

The output of lake trout was very small owing to the scant supply of eggs furnished to the Station. With the help of Protector Claude DeVille, the collection of lake herring eggs at Sodus Bay was remarkably successful. Gill nets were used for taking

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the fish, but pound nets will be tried during the coming season, and they will probably work better, and lessen the danger of killing the fish. Maskalonge eggs were successfully hatched for the first time at this Station. They were shipped here from the Bemus Point Station, and the fry were delivered to many parts of the State in fine condition according to the reports of the applicants.

The Pennsylvania Fish Commission, through Superintendent Hartman, at Erie, Pa., did everything possible to make our fishing for lake herring at Erie a success. The Desmond Fish Company, of Dunkirk, gave us valuable assistance in our efforts to collect lake trout eggs. They made a lot of gill nets for this purpose; but the weather was bad and the fish spawned late so that the experiment was not a success.— *Reported by Frank Redband, Foreman, Mumford, N. Y.*

CHAUTAUQUA STATION

The brook trout were all kept to the fingerling stage before distribution. Owing to lack of railroad transportation from Bemus Point only 142,000 brook trout fingerlings were sent out on applications from here; the remaining 243,000 were shipped to Caledonia for distribution from there. The distribution was finished at this point on July 30.

The four cement ponds, each 4 x 40 feet, that were constructed last fall were of much advantage in rearing the trout. If we had another flowing well equal, or even one half the capacity of the one now in operation, we could increase the trout output very greatly. The new ponds, constructed above ground, proved much superior to the old ones during high water in the spring. The water surrounded the hatchery, but did not overflow the new ponds which were full of brook trout at the time. There is an appropriation of $100,000 to remedy the flood condition of this lake.

From December 1 to December 9, 1912, we collected 25,856,000 lake herring eggs at Erie Pa., and December 17 to 19, we obtained 9,595,000 eggs at Dunkirk, N. Y. Bad weather set in at Dunkirk forcing the tug fishermen to quit fishing. The tug fishermen were very obliging and helpful in our herring egg collection. It is no

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easy task for the spawn taker to go out on these tugs to get the eggs, and it is difficult to secure competent help. It is hard to get good eggs from gill nets that remain in the water 2, 3 or 4 days before lifting. Although the fish are alive when the eggs are taken, they become waterlogged, and the eggs come freely before they are mature. After the eggs have been in the hatching jars from 2 to 4 weeks in water at 34 degrees they will begin to show the poor ones, and bring the percentage of hatch under the average. If the fish were caught in pound nets or if they remained in the gill net not over 12 to 24 hours, I believe 85 to 90 per cent of them would hatch.

Much credit is due to the Pennsylvania Fish Commission and Superintendent Hartman, at Erie, and to the Desmond Fish Company, of Dunkirk, N. Y., for their courtesy and help in collecting lake herring eggs. Some of the herring fry were planted in Chautauqua lake, but the bulk of them, 12,000,000, were sent to Lake Erie at Dunkirk.

High water at the beginning of the season was a hindrance to the maskalonge work. The maskalonge, when first hatched, is one of the most helpless of fishes, and is a prey of any and all smaller fishes, besides, as soon as it is able to swim it devours its own kind in preference to any other food we have yet been able to provide. Owing to lack of railroad transportation for reaching applicants in this section, a large part of the maskalonge eggs, at the eyed stage, were sent to the Caledonia Hatchery for development and distribution from there. There were also furnished to the Pennsylvania Fish Commission 500,000 eyed maskalonge eggs for their station at Union City.

The collection of yellow perch eggs was small owing to windy weather which prevented finding the eggs at the proper time. The perch seldom exceeds 6 inches in length in this lake, and is therefore not fished for as in most waters.

During July and August there are many visitors at the hatchery. A pound net was set to collect fish for exhibition in the cement ponds. Maskalonge, carp, billfish, bullheads, black bass, large mouthed and small mouthed, rock bass and sunfish were exhibited and proved very attractive to the visitors. Two maskalonge, 4 feet long and weighing from 35 to 38 pounds, were

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Photo by J. A. Glenn.

Hauling trap net with pike perch. Oneida Lake, Constantia, N. Y.

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among the fishes. On September 10 all the fish that remained alive, except the carp and billfish, were liberated.

The newly graded and seeded lawn, with three flower beds, added much to the attractive appearance of the station. The high water last spring washed out the sides of the earthen ponds. Repairs to this pond are now in progress. We are also making a cement flume for an outlet of all the water supply into the lake.—*Reported by Grant E. Winchester, Foreman, Bemus Point, N. Y.*

COLD SPRING HARBOR STATION

Through the courtesy of Mr. George P. Slade, President of the Southside Sportsman's Club, of Long Island, we had the privilege of collecting brook trout eggs from the club ponds. From this source we obtained a fine lot. The green eggs were sent by rail to our hatchery and except for some damage done in transferring at railroad stations, they turned out very good. The expense of collecting these eggs was very small compared with the cost of similar eggs from commercial hatcheries. We had many more than were needed at this Station, and the surplus was sent to several hatcheries.

We collected good brook trout eggs at our hatchery, but we are carrying very few stock brook trout. There was no trouble in our trout work this season, as the fish were clean and free from disease. The stock fish are in fine condition.

We collected all the eggs of tomcod our jars would hold and stopped collecting before the spawning season closed. The returns from sales of tomcod sent to the city market carry many fishermen through the month of December when there is nothing else to be caught in the bays. We have single hatching tables only. These could be converted into batteries thereby doubling the number of jars and greatly increasing the output.

Another very important fish which furnishes a great quantity of cheap food in the city markets is the winter flatfish. Large numbers are shipped from Montauk and other stations on Long Island. When properly cooked the flatfish is as good as the fluke. It is difficult to collect these eggs owing to the rough weather on the seacoast during March. The eggs are adhesive and must be stirred continually for a long time. They are very small and of

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a bright orange color. Vast quantities are hatched, but better work could be done if they were hatched near the spawning grounds. The fry are very small and difficult to hold in the tank.

The smelt is ahead of all other fish for market value. Coming in the Lenten season, just before shad appear on the coast and before the trout season opens, Long Island smelt are in great demand and always bring a good price. We did not collect as many eggs as usual owing to the small size of the fish. The run was very large but the fish were small. The extensive handling of the eggs to separate them causes considerable loss, but still more serious loss is due to overloading the hatching jars.

Pike perch eggs were obtained from the Oneida Hatchery. 2,000,000 fry were produced for planting in Lake Ronkonkoma. The eggs arrived in fine condition, hatched well, and the results from stocking should be good. Ronkonkoma Lake is a beautiful sheet of water having an area of about 300 acres with a depth of nearly 70 feet.

The work with sea bass should be greatly increased, and this could be done if we had a boat to go to the fishing grounds for eggs. Several men who fish for sea bass collect eggs, but in order to extend the work we must have a boat. The men who pen the fish for the late fall market do not want to have them handled as they are difficult to strip without more or less injury because of the hard spines. These fish are very valuable at certain seasons, and pens built of brass wire netting often contain several thousand dollars worth of fish. Had we the means of catching the fish we could build pens and hold the bass until they are ready for stripping. Small tanks or pens which would give us all the eggs we could handle should be built at the hatchery.

The lobster is hatched at the Auxiliary Hatchery on Fort Pond Bay, Montauk. Owing to a long spell of foggy, bad weather the fishermen were unable to set their pots outside where they would catch egg bearing lobsters. Not being properly equipped for this work we were unable to make a good record. A motor boat is much needed, to go to the several fishing stations to collect eggs. We were limited to what came to Montauk Landing. Captain E. B. Tuthill and other fishermen did what they could to help us. One fisherman who sets pots around Block Island and in the race says

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that of ten bushels of lobsters caught in one night eight bushels were egg bearing. All of these go to Connecticut shores. If we had a proper boat we could collect all of these eggs. The eggs hatched perfectly. There was no loss except when we had trouble with the pumping plant and had to transfer eggs to floating boxes in the bay. Outside fishermen claim that this was the best season for lobster fishing they ever had. This is very encouraging news coming from that source.

Nothing else among the marine animals is so eagerly sought after as the blue crab. Thousands of people go daily to the docks along the South Bay with a piece of meat tied on a string in one hand and a scoop net in the other fishing for crabs. Men who follow this fishery for a livelihood use trawl lines and dredges. Sometimes the crabs are caught in large numbers and the market price drops very low, but generally the price is fair. There has been quite a demand upon the Commission recently to stock certain waters on the north side. Through requests from applicants, Flushing Bay has been stocked with fry, eggs and adults. Persons having boats to hire this summer could not supply the demand. People came out from the city by trolley and train to go crabbing on the bay. Huntington Harbor and Cold Spring Harbor were also plentifully stocked last summer.

The water supply was about the same as usual. No change is noticeable in the flow from the wells or springs. A small building containing a large ice chest has been erected to keep fish food. The ice house has been taken down and will be rebuilt, with the same lumber in time for the ice crop this winter. The grounds have been in fine condition, and have attracted numerous visitors. — *Reported by Charles H. Walters, Foreman, Cold Spring Harbor, N. Y.*

DELAWARE STATION

The output for the year was not quite as large as in 1912, which is due to the loss in one lot of brook trout eggs after they were received at the hatchery in the eyed stage. I think they were injured in transportation, as some of the trays when unpacked were found to be bunched together badly. Owing to this there were more cripples and weak trout after hatching than usual.

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Brook trout, brown trout and rainbow trout were hatched the same as heretofore. The eggs commenced hatching about three weeks earlier than in 1912 owing, perhaps, to the mild, open winter, so we commenced shipping our first fry about three weeks earlier than ever before.

The loss through diseases was very small. Owing to the dry weather our water supply was very low during part of July and through August; but as the bulk of our shipping was finished by July 10 the low water did not make much difference with us.

The drivebridge has been practically rebuilt. A new rack has been put in at the dam to protect the pipe leading to the hatchery. We expect, also, to rebuild four of the outdoor races this fall.

The usual display of flowers around the hatchery and dwelling house was made and proved very attractive.— *Reported by H. E. Annin, Foreman, Margaretville, N. Y.*

Foremen Annin and Rhines were sent to Hitt's Lake on October 25, 1912, to collect eggs of brook trout if possible. Three nets were set in different parts of the lake, but they caught only four trout, one of which was a large immature female. The inlet stream was also examined for its entire length and not a single trout was found. There were no signs around the shores of the lake to show that fish had been preparing to spawn. It being apparent that eggs could not be obtained in this lake, the work was discontinued on October 27. The collection of brook trout eggs from stock fish at the Station was ended before the close of October.

FULTON CHAIN STATION

The work at this Station has been very successful this season. Although we did not get many eggs from wild brook trout, we obtained an increased number of eggs of lake trout and whitefish. These fish all spawned at the same time and in the same place. The lake trout begin a few days before the whitefish and continue spawning through the whole time of the whitefish run which is from about October 20 to November 20.

Eggs were taken from 808 female whitefish and milt from 918 males, resulting in a total of 322-½ quarts of eggs, of which 60 quarts were sent to the Adirondack Hatchery (a quart of whitefish eggs contains 42,000).

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Eyed eggs of brook trout received from one of the commercial hatcheries developed remarkably well, as less than 11,000 eggs were picked off during the hatching period of three months. The fry were large and healthy and grew very rapidly into nice fingerlings which were planted in June. I think this result was due mainly to the early arrival of the eggs before the water became too cold.

We had some trouble in December, 1912, on account of the water being drawn down in the dam. This could be overcome by lowering our hatching jars or laying additional pipe from the bulkhead to the hatchery a distance of about 100 feet.— *Reported by William H. Burke, Foreman, Old Forge, N. Y.*

LINLITHGO STATION

I am greatly pleased to state that this has been the most successful year in the history of this station. Our output has been steadily increasing from year to year. The increase over the distribution of last year was 23,336,975, due to lake herring eggs brought from Lake Ontario and pikeperch eggs from Oneida Lake. This is a departure from the old way of fish distribution. By bringing the eggs to this station and hatching them the distribution for the eastern part of the State is easier and cheaper than to transport the fry from a distant hatchery.

Our brook trout eggs were bought and shipped here as eyed eggs. They gave the best of satisfaction as far as hatching is concerned. This station can never compete with other stations in trout work until suitable spring water is secured to raise them to fingerling size. Such water is found about a mile from the station, and I have no doubt that for a nominal sum suitable ponds could be built there to rear them to fingerling size.

Our brood calico bass were put in Hapeman's Lake last fall, and we now have only 50 two year old calico bass for rearing purposes. We have 120 small mouthed black bass left from the original number that were brought here from Oneida Lake in 1907. It will be necessary to infuse new blood into these or get an entirely new stock, as they have grown so large and old that some of them are barren and unfit for breeding purposes. On account of its location, this station can supply only a limited num-

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ber of bass. The brood fish must be kept the whole year in the ponds, and it is hard to get food for them.

The short-nosed sturgeon failed to give us any results this year. I think it would be better to discontinue this experiment and use the pond for other fish.

The Pennsylvania Fish Commission gave us 30 quarts of shad eggs, which were hatched at this station. Of the eggs collected by our men at Rhinecliff more than 70 per cent hatched.

The distribution has been quite satisfactory this year, although some of the applicants returned the cans by express thus adding to the cost.

We have many enemies to contend with in raising fish beyond the fry stage. Eels, snakes, turtles, birds and the giant waterbug are active in reducing our total. Some of these we can get rid of, but eels and bugs are hard to keep out.— *Reported by Wallace D. Rhines, Foreman, Linlithgo, N. Y.*

ONEIDA STATION

The year has been a very successful one, an increase of nearly 27,000,000 of fish having been distributed from this station over the output of last year. (This does not include eggs sent to other stations for development and distribution.)

There were 50,000,000 yellow perch fry planted in Oneida Lake and 307,750 fingerlings were sent to fill 106 applications.

From November 11 to November 28, 1912, 420½ quarts of tullibee eggs were taken in Oneida Lake. These eggs commenced to hatch March 29, 1913. The number of fry hatched was 59,250,000 of which 56,025,000 were planted in Oneida Lake and the balance were sent to applicants.

We had very good weather for our fishing and the eggs were in fine condition. During the winter and previous to hatching, the eggs showed very little fungus.

On December 1, 1912, we received 190 quarts of greenback herring eggs from Lake Ontario. These produced 19,250,000 fry of which 250,000 were planted in Oneida Lake and the balance in Lake Ontario, at Oswego. About twelve jars of these eggs were clean and bright during the whole hatching period while others were brown from the dirt in the water. All the eggs were developed and hatched about the same time.

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Photo by J. A. Glenn.

Stripping pike perch. Constantia, N. Y.

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Pikeperch eggs were taken from April 4 to April 19, 1912. Using 2,572 females and 9,173 males we procured 1,124½ quarts of eggs. Of these we shipped 460 quarts to Caledonia, Cold Spring Harbor, Linlithgo, Massachusetts and Pennsylvania. This left a total of 664½ quarts in the hatchery from which were hatched 94,691,250 fry. Eighty-eight applications were filled with 9,425,000 fry, and the remaining 85,266,250 were planted in Oneida Lake.

The season was not so favorable as that of last year. The lake was open several times during the winter and the high winds prevailing scattered the fish from the spawning grounds. The ice went out of the lake earlier than usual so that the temperature of the water in the lake and in Scriba Creek was nearly the same.

From April 26 to June 1 we caught 1,025 brood black bass. These bass were placed in the six ponds at the hatchery. From May 23 to 25 it was very cold after having been very warm previous to that time, and the bass in one pond left their nests and the eggs were spoiled. About one-half of the nests in another pond were spoiled for the same reason. Fortunately these were the only ponds containing eggs at the time, they being the first ponds filled. Afterwards these nests were rebuilt and covered with eggs although no new fish except a few males were put into the ponds. About the latter part of June we were obliged to plant the remaining fry and fingerlings in the lake owing to the scarcity of water from the supply pond. The number of black bass fry produced was 423,500, and the fingerlings 66,300. This represents an increase in the number of fry over last year and a decrease in the number of fingerlings. The gill disease among the fingerlings was scarcely noticeable and only eight of the brood bass died.

Not as many silver bass were caught in the nets while fishing for black bass as there were last year. Five silver bass were placed in a separate pond at the hatchery for experimental purposes; but owing to low water we had to replace them in the creek. I have found quite a number of silver bass fingerlings hatched in the lake last spring, and they were about twice as large as black bass fingerlings of the same age. Hundreds of fingerling yellow perch were found this fall lying dead on the bottom of Scriba

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Creek. I examined a great many, and in every one the left eye was gone. This I have learned is caused by a parasitic worm which destroys the crystalline lens and in a short time causes the whole eye to drop out.

A large number of dead fish especially tullibee which had been killed by lamprey eels were seen floating in the lake. One black bass was also found dead.

There were sent from Oneida Lake to the State Fair at Syracuse, September 8 to 14, 1913, 140 adult fish representing twenty-four species. The fish remaining alive after the close of the Fair were taken by the Anglers Association of Onondaga County for planting in Onondaga Lake and Jamesville Reservoir.— *Reported by Dan E. Miller, Foreman, Constantia, N. Y.*

ONEIDA HATCHERY

On April 18 and 19, 1913, the Fish Culturist inspected the Oneida Hatchery to learn the exact conditions at the end of the pikeperch season. There were at that time in the hatchery 660 quarts of pikeperch eggs, all in the very finest shape. No better eggs have ever been seen at the station. Foreman Miller shipped 140 quarts to the Pennsylvania Hatchery at Union City, Pa., in exhange for whitefish eggs and other eggs furnished to us by Commissioner Buller. To the Massachusetts State Hatchery at Palmer, he sent 17½ quarts of pikeperch eggs as a return for eyed eggs of brook trout given to our Adirondack Hatchery by the Massachusetts Commission last fall. He also shipped 187½ quarts to Caledonia, 97½ quarts to Linlithgo and 17½ quarts to Cold Spring Harbor, in order to divide up the distribution more economically and reach the applicants in various parts of the State more promptly than by shipping all the fry from Constantia.

The number of eggs taken in 1913 was not quite equal to that reported in 1912; but it is probable that the eggs of 1912 were not measured as dry (free of water) as those taken in 1913. Furthermore, the egg taking season dragged along from April 4 to April 19 with extremely variable weather alternating with storms and warm days so that the conditions were not normal.

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The fish show a tendency to keep out of the creeks in weather of the character prevalent in the spring of 1913.

Very few if any pikeperch were stolen from our nets or along the shores of Scriba Creek, which is due very largely to the efficient and continuous watchfulness of the game protectors who were detailed to help protect the fish during the spawning season.

The yellow perch, for some uncountable reason, did not spawn on their usual grounds in 1913.

NOTES ON SPECIES

SHORT-NOSED STURGEON

On June 13, 1913, a collection of snails, which form a large part of the food of the short-nosed sturgeon in one of the ponds at the Linlithgo Hatchery, was sent to the Assistant Secretary of the Smithsonian Institution, Washington, through whose kindness they were identified as representing the following species:

Vivipara contectoides, Binney; *Lymnaea catastopium,* Say; *Physa ancillaria,* Say; *Planorbis trivolvis,* Say.

SHAD

The first eggs, five quarts, were taken in the Hudson river May 7, 1913, for the Linlithgo Hatchery.

At the Linlithgo Station, in 1913, the rearing of shad from fry was unusually successful. On September 16, the foreman reported that the fish are the finest he has ever seen. There are about a half million in the pond. It has cost about thirteen dollars to feed them thus far, and the total cost for the entire season will scarcely exceed twenty dollars. The water is too low now to float them out into the creek, and they will be kept until the fall rains increase the supply. A few of the shad have been killed by the big waterbugs, *Belostoma;* but the losses from all causes were very trifling.

LAKE TROUT

At Silver Lake, in Franklin County, one of the employees of the Adirondack Hatchery collected between five and six quarts of eggs of this trout up to October 20, 1912; but he had great difficulty in obtaining male fish to fertilize the eggs.

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The collection of eggs in Keuka Lake was finished on December 9, 1912. The whole number of lake trout caught was 278, and the number of eggs obtained was 102,400.

For separating dead eggs of lake trout from the live eggs Superintendent Thayer, of the Bureau of Fisheries Station at Northville, Mich., uses salt solution prepared by thoroughly dissolving one pail of Diamond Crystal table salt in eight pails of clean, clear water and then bringing the density of the mixture to 34 degrees. This offers a very expeditious and economic method of removing the spoiled eggs. The same solution might be used for trout eggs of other species; but the density of the solution would have to be varied to suit the particular kind of egg under treatment. Mr. Thayer believes that brook trout eggs would require a density of about 32 degrees.

In operating with this solution, Mr. Thayer uses three six quart cans one of which is filled about two-thirds full of the solution; into this is put one tray of lake trout eggs; an empty tray is placed across the top of each of the two remaining empty pans, and as soon as the dead eggs have floated they are poured onto one of these trays which allows the solution to pass through into the pan below; as soon as the dead eggs are removed the live eggs are poured onto the remaining empty trays and the balance of the solution will pass into the third pan; the live eggs are then immediately placed in fresh running water; the two partially filled pans of solution are combined into one pan and the process repeated for each tray.

THE WHITEFISHES AND THEIR KINDRED

The whitefishes, lake herrings, or ciscoes and the tullibees are now all included in a sub family of the salmonidae or salmon family. In North America, according to the latest literature, there are now 32 species of the sub family, and of these 12 at least occur in New York waters.

The whitefishes are best known popularly by the two large species occurring in Lake Erie and Lake Ontario. One of these is common in all the Great Lakes except Erie, and it abounds in many Adirondack lakes. The distribution of both of these large fishes has been much extended by artificial culture.

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In the Adirondack lakes the prevailing whitefish was formerly described as the Labrador Whitefish, and this form reappears in Otsego Lake where it is represnted by a small race locally known as Otsego bass. Attention will be called farther on to all the different species, not only of whitefishes, but also of lake herring and tullibee thus far observed in our waters.

The choicest of the species for food are included among those recorded in our State. A list of all the known forms follows herewith.

THE NEW YORK WHITEFISHES AND RELATED SPECIES

SAGINAW BAY HERRING, *Leucichthys harengus*

It is taken in great abundance in Saginaw Bay, where it is largely salted for commercial purposes. It is the most important fish in the fisheries of Saginaw Bay.

This herring has been discovered recently in Hedges Pond, Washington county, N. Y., where it is very abundant. It is said that the pond and adjacent lakes were stocked from Lake Saint Catherine, in Vermont.

SENECA LAKE HERRING, *Leucichthys osmeriformis*

This is sometimes called Seneca Lake Smelt. It is known from Seneca Lake, Keuka Lake and Skaneateles lake. The so-called "Frostfish" of Lake George, the best known bait for Lake Trout, is probably the same fish.

Specimens of a cisco very much resembling the Cisco of Lake Tippecanoe have been taken in Otisco lake and probably Canandaigua lake. No complete studies of this fish have been made, and it is not clearly identified.

ONTARIO HERRING, *Leucichthys ontariensis*

This has been described from Lake Ontario and Cayuga lake. It is the "Greenback Herring" of Sodus Bay which has furnished a large number of eggs for some of our State hatcheries during the past fall. This is an excellent food fish and reaches a length of 13 inches or more.

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COMMON LAKE HERRING, *Leucichthys artedi*

The common lake herring of Lake Erie. It ranges also to Lake St. Clair and Lake Huron, and has been planted in Lake Ontario from Lake Erie.

JUMBO HERRING, *Leucichthys eriensis*

Found in Lake Erie and northward. As a food fish it is far superior to the other lake herrings, and is as good as the best Whitefish.

ONTARIO LONGJAW, *Leucichthys prognathus*

Deep waters of Lake Ontario, in depths of 60 fathoms and more. Sometimes called bloater.

TULLIBEE, *Leucichthys tullibee*

This is known to the fishermen as "Oneida Lake whitefish." It was formerly abundant in Onondaga Lake, where it is now absent or rare; but abundant in Oneida Lake. Highly prized as a food fish. The Oneida Hatchery force collected upwards of 60,000,000 of Tullibee eggs last fall. As a fresh fish or salted or smoked, it is one of the best food fishes in the lake.

LABRADOR WHITEFISH, *Coregonus clupeaformis*

Known also as Lake Superior whitefish; Manitoba whitefish; Musquaw River whitefish; whiting of Lake Winnepesaukee and shad of Lake Champlain. The Otsego whitefish, locally known as Otsego bass in Otsego Lake, is believed to be identical with this species. This is the common whitefish of all the Great Lakes, Lake Erie excepted. It is also found in many of the smaller lakes of New York. This is one of the most valuable of all of our food fishes.

The Commission has obtained more than 13,000,000 eggs of this fish from its Adirondack Hatcheries.

LAKE ERIE WHITEFISH, *Coregonus albus*

Found in Lake Erie and Lake St. Clair; introduced into other lakes. This species is not so good as the Labrador whitefish; but it is a very important food fish. It is not known to take the hook

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Photo by J. A. Glenn.

Stirring pike perch eggs, Constantia, N. Y.

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while the Lake Superior whitefish, or Labrador whitefish, takes the hook readily, large numbers being taken every day in season in the locks at Sault Ste Marie by local anglers. The Commission collected over 7,000,000 eggs of this whitefish last Fall in Lake Erie.

FROSTFISH, *Coregonus quadrilateralis*

This is known also as the Menominee whitefish, pilot fish, round whitefish and shadwaiter. It extends throughout the New England lakes, Upper Great lakes and northwest to Alaska. This is not highly valued as food; but it is important for the food of Lake Trout and other good fish. The Adirondack Hatchery obtained 446,000 eggs of this species last Fall.

CHATEAUGAY LAKE WHITEFISH, *Coregonus* sp.

This appears to be identical with Stanley's whitefish, of Maine. It is a little fish, extremely abundant in Chateaugay Lake, where it is sexually mature at a length of 9 or 10 inches. The Adirondack Hatchery collected more than 4,000,000 eggs of this fish for a first experiment, and they are in process of hatching, although they do not seem to be as hardy as eggs of the frostfish and Labrador whitefish. This small species is valuable for the food of lake trout and other food fish.

It seems to be not generally known that both the whitefishes and the ciscoes, or herrings, take the baited hook freely, and some of the Herrings are easily caught with artificial or natural flies.

Jordan and Evermann, writing of the Labrador whitefish which is the commonest kind in our New York Lakes except Erie, say that it takes the hook readily, large numbers being caught every day in season in the locks at Saulte Ste Marie by local anglers. Charles G. Atkins, when fish commissioner of Maine, published the following account concerning the Labrador whitefish: "In Moosehead Lake they sometimes take the fly. In June last, we saw one taken with a fly near Mount Kineo by Artemus Libby, Esq., of Augusta. It weighed one and one half pounds. They can be taken with a hook at any season of the year in deep water. Almost any bait will answer, but the best is a piece of small fish. The most of them are taken in winter. The greatest

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success is obtained by sinking through a hole in the ice, at the end of a line a cusk thoroughly gashed with a knife (cusk is a fish of the cod family). This remains there one day and tolls a great many whitefish around. They are then taken by smallest baits on small hooks.

Fish Commissioner H. O. Stanley, of Maine, published the following notes on this whitefish: "Some 20 years ago the U. S. Fish Commission sent me some whitefish eggs, I think from one of the lakes in Michigan. I hatched them at Rangely and planted them in the upper Rangeley lakes. This winter they have been caught with hook and line in considerable numbers in Umbagog Lake, which is the fourth lake below. These whitefish were caught with a small live minnow by fishing through the ice."

The so-called Otsego bass of Otsego Lake is a small race of this Labrador whitefish according to the latest information. It is well known to expert anglers on the lake at Cooperstown that the fish can be taken in large numbers by hook and line. The apparatus for this kind of fishing is a line with a sinker at the bottom and with a piece of spring wire attached horizontally about 4 inches above the sinker. At each end of this wire is fastened, at a slight angle, a No. 16 Sproat hook, and this is fastened to the line by an ordinary gut snell. Protector Miles Hazelton mentions a variation in the rig consisting of a rubber band connecting the two parts of the line about 2 feet above the hooks; this keeps the hooks in motion without the necessity of jigging which was necessary in the original form of whitefish rig. Each hook is baited with a minnow an inch long or with a small piece of fish.

Concerning the Rocky Mountain whitefish, Jordan and Evermann state that during the spring and early summer it takes the fly freely as well as the baited hook. The smallness of the mouth requires the use of very small hooks. When bait is used, very small grasshoppers, salmon eggs and small bits of fresh meat of almost any kind have proved effective. Good fishing localities are the headwaters of Salmon River and Big Payette Lake, in Idaho, streams near Dillon, Montana, Lakes Pend d'Oreille and Coeur d'Alene and Provost River, Utah. As a pan fish it holds very high rank.

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Concerning the Chateaugay lake whitefish, Foreman Otis states that there are millions of the fish in that lake and the people who reside on the shores of the lake say they have always been there. They seldom take the hook, but occasionally one is taken in this manner.

The lake herrings, or ciscoes, are better known, perhaps, to anglers than the related whitefishes. Mr. M. C. Worts, Superintendent of Inland Fisheries, has given me the following note:

"I well remember the sport that I used to have in catching ciscoes off the West Breakwater of Oswego. My schoolmate, Billy Williams, and I used to make our own flies out of light hen feathers, and by casting in a breakwater have caught many ciscoes. Later on in the season, we have used other bait, but could not catch them as plentifully as when we used the fly. It was surprising to a great number of people that the cisco would rise to a fly; but I have a number of Oswego friends who can verify this statement and who likewise followed the same method and had rare sport in taking these fish."

The cisco of Lake Tippecanoe, which is probably found in a number of our lakes in western New York, also occurs in Geneva Lake, Wisconsin, where it is regarded by local anglers and others who have had experience with it as one of the most attractive and interesting fishes to be taken with rod and line. The fact that it can be taken for only a few days each year adds zest to sport already fascinating. During the last days of May or the early days of June, when the May fly is on the wing, the cisco is seen. Then the anglers go in boats out on the lake where the water is 50 to 100 feet deep and where experience has shown the cisco may be found. Until casting begins not a fish can be seen, nor the slightest ripple on the water; but no sooner have a few impaled ephemeras (May flies) dropped upon the surface than the ciscoes begin to appear. They can be seen coming up from the depths, their pearly sides burnished by the gleam and glint of the afternoon sun. In a moment the water all about the many boats is a-ripple with eager fish, every hook has been taken, and the happy anglers are busy removing the catch and dropping it into their boats. The May-fly is the lure in almost exclusive use, though Mr. Harris succeeded in taking a few fish with an artificial

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fly. The great tenderness of the mouth of the cisco does not permit the angler to play his fish except at the almost certain risk of losing it.—Adapted from Jordan and Evermann's American Food and Game Fishes.

The lake herrings, and especially the fall spawning kinds, are highly esteemed food fishes. Smoked ciscoes, at the present time, are selling for twenty cents per pound and upward. No apology should be necessary for attempting to multiply a fish of such value. The Oneida Lake tullibee, called whitefish locally, is an excellent fish for the table either fresh or salted, and it is a fine fish for smoking. These ciscoes can be captured by anglers who will take the trouble to learn the successful method with hook and line in any reasonable number, and the so-called Otsego bass, a small whitefish of Otsego Lake, furnishes remunerative employment for a goodly number of skilled fishermen.

WHITEFISH

On April 6, 1913, Mr. Edward V. Z. Lane, of 24 West 49th street, New York city, wrote as follows:

For several years I have frequently caught in deep water (40 to 50 feet) in Upper Saranac Lake, whitefish weighing from two to four pounds, and delicious in flavor. I have been informed that the lake was stocked with them some years ago, but that none have been put in since that one time. From the description given in a newspaper article in the Adirondack Enterprise of March 6, I judge they are the Otsego Lake variety.

On April 9, 1913, Mr. Lane again wrote: "Some years ago the lake (Upper Saranac) was stocked with whitefish as a result of which I have frequently caught fish of that variety in midsummer when lake trout were difficult to catch and when they proved valuable as food."

Again on April 10, Mr. Lane described the method of capture more in detail: "As to the capture of whitefish in Upper Saranac Lake, my first experience was in the year 1897 while buoy fishing in midsummer for lake trout in about forty feet of water. We had drop lines with large hooks baited with pieces of perch. At times there would be very slight touches which suggested the

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presence of fish with mouths too small to take in the bait. I tried a thin line with a small hook with a small piece of the same bait which was soon taken and a whitefish brought up to the net. Since then I have found worms to be a better bait. Care must be taken to avoid tearing the hook from the mouth. Twitch gently, draw up slowly but steadily and always take in with net."

ANGLING FOR WHITEFISH

A man formerly connected with a museum in Washington, D. C., and who was in a feeble condition, went into the Adirondacks for his health. He found a point on Saranac Lake, with deep water on each side of it, bought the piece of property for $38,000, and built himself a summer home there. Being an ardent fisherman, and having learned that whitefish are in the lake, he sought a way to catch them without netting. His method was this: A few days previous to angling from his boat, he made a mixture of paste — flour and water and possibly some other ingredient — to hold the dough from dissolving too fast. He baited the ground which he desired to fish one or two days afterwards. When the time came for him to fish for the whitefish he used a very small hook (possibly a No. 8 Sproat or No. 8 Allcock) on a line with sinker heavy enough to take the hook to within a foot or 18 inches of the bottom, and for bait a pellet of dough (possibly mixed in with a piece of fine sponge to hold to the hook). He jigs the bait not too fast then the fun commences. He has taken a great many in a day. The most important part is to haul steadily and use a landing net to take in the fish. An average of only one out of three is caught because the mouth is so tender that the fish cannot be hauled out like bass, pike, bullheads or carp. The weight of the fish is too great when it struggles to get away for the jaws to hold him. This angler generally fishes in from 60 to 75 feet of water for the whitefish.

In a Report of the U. S. Fish Commission it is stated that a Mr. Trompe has taken whitefish at Saulte Ste. Marie with Mayflies. Mr. Dan E. Miller notes that whitefish have been caught off the breakwater at Chicago, Ill., and also at Whitefish Point, forty-five miles from Saulte Ste. Marie, Mich., with worms for bait.

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ANGLING FOR TULLIBEE

Mr. Dan E. Miller writes as follows concerning the capture of tullibees with hook and line in Oneida Lake:

"I think it was early in September, 1913, that Fred Houser, of Cleveland, N. Y., was fishing for perch one afternoon off Wickham's Point. He had a great desire to know what it was that was nibbling at his hooks, and having a small trout hook, he took off the larger hook and put the small one on baited with a small piece of worm. The hook had hardly sunk three feet under water when he saw the tullibees darting around the bait. He caught seven, and said if he had known what they were, he could have caught 100. The fish taken were from six to nine inches long. Mr. William Gallagher and Mr. O'Connor, of Cleveland, saw the fish when Mr. Houser came ashore, and Mr. Gallagher told Foreman Miller that they were the same fish we were stripping here in November, 1912.

CHATEAUGAY LAKE WHITEFISH

Mr. Milo F. Otis furnishes the following notes under date of January 15, 1913:

"These whitefish are found in great quantities; there are millions of them there, but we have never found any of them in any other waters in which we have fished. The people who reside on the shores of the lake say these fish have always been there; they very seldom take the hook, but occasionally one is taken in this manner. The female will produce on the average about one ounce or 3,600 eggs. They spawn in about 20 feet of water, which is much deeper than most any other fish spawn in.

We have never noticed any little pearly tubercles on the scales, but occasionally find a fish which has a small sore spot on its side resembling the spots found on the whitefish in this locality.

The eggs from these little fish do not do very well. I run them in the glass jars and give them the same care as the regular whitefish, but a large number are dying. Up to the present time, I have not been able to see any eyes or other signs of life in these eggs. While taking the eggs last fall, we had some difficulty in fertilizing them; although we had any number of males there was a scarcity of milt, as each male yielded so small a quantity. I

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think possibly this may have been caused by catching the fish in gillnets. I think it would be better to use pound nets if we fish for this species another year."

TULLIBEE

A tullibee was caught in a bay in Oneida Lake on the village front in May, 1913. This is the first recent instance of the capture of a tullibee in the lake in that season of the year.

Probably for the first time, at least in many years, specimens of the tullibee were caught by angling in Oneida Lake in the summer of 1913. The fish so taken were seen by W. M. Gallagher, Esq., of Cleveland, N. Y., and other persons.

SMELT

On September 5, 1913, one of the employees of the Adirondack hatchery brought in two adult smelt, the longest about 8 inches, from Little Clear lake. In 1906, Mr. Winchester planted about 60 adult smelt in Little Green pond, which has an outlet into Little Clear Lake. It is not considered probable, however, that these individuals furnished the stock observed in Little Clear, as they were in bad condition when planted. Mr. Winchester, formerly in charge of the Adirondack station, states that he had caught small smelt at the head of Little Clear lake some years ago in a hoop net set for brook trout. Foreman Walters, of the Cold Spring Harbor hatchery, delivered a lot of fry of the smelt for planting in Upper Saranac lake in 1896, and these, it is believed, formed the initial supply of that lake and communicating waters. It would have been easy at that time for the smelt to ascend through connecting waters into Little Clear lake.

During the month of March, 1913, Foreman Walters, of the Cold Spring Harbor station, collected 140,000,000 smelt eggs. Those old enough to clean up showed a better percentage of good eggs than in any previous year, in fact, they were the best lot of smelt eggs ever collected at the hatchery.

MASKALONGE

The first eggs taken in Chautauqua Lake were obtained from a single female which yielded 21,000.

On April 16, 1913, Mr. A. G. Buller, Superintendent of the Union City, Pa., Station, informed us that a few maskalonge fry

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escaped into the big pond at the Station, and in December, 1912, when he measured several of them, they had reached a length of nine inches, ten and one-half and twelve inches respectively. In other words, one of them had grown to a length of twelve inches in seven months.

PIKEPERCH

The first eggs were taken at the Constantia Station on April 4, 1913. There were 59 females and 438 males in the stripping house, but only two quarts of eggs were collected. Owing to the low temperature of the water at the hatchery, 38 degrees, not much progress was made until April 14, on which date 662 quarts had been taken. After this date the fishing dropped off very rapidly.

Eggs were sent to Linlithgo Hatchery, Cold Spring Harbor, L. I., and Caledonia, N. Y., and exchanges were made with the State Commissions of Pennsylvania and Massachusetts. Eggs shipped by express to Palmer, Mass., from Constantia arrived in fine condition, and were hatched with very little loss. The same is true of the eggs sent to Long Island and to Pennsylvania.

STRIPED BASS

Early in April, 1913, Mr. Edward Ackerley, of Tarrytown, N. Y., wrote to the Commission that small striped bass are plentiful in the Hudson in the vicinity of Tarrytown, and that spawning grounds of the striped bass exist in that region. The fish commissioners of New York and their successors have been trying ever since 1868 to find the spawning ground of the striped bass in the Hudson River without success and they have been equally unsuccessful in securing reliable information concerning such grounds. Seth Green, when a member of the Commission, obtained eggs of this bass in the Susquehanna river, at Havre de Grace, Maryland. At the present time, owing to the uncertainty of the egg crop in the Susquehanna and the Potomac Rivers, the U. S. Bureau of Fisheries collects its supply of striped bass eggs in North Carolina.

There is no doubt that small striped bass are taken in the Hudson, but it is very doubtful whether they are bred there. Information on this subject is very much desired.

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Photo by J. A. Glenn.

Pike perch eggs in jars, Oneida Hatchery, Constantia, N. Y.

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SMALL-MOUTHED BLACK BASS

The first great difficulty met with in our efforts to raise bass fry to fingerlings is the lack of water. In No. 4, or the new pond, the inlet and outlet are nearly opposite each other at the east end of the pond so that the west end has no circulation.

The abundant growth of algae which furnish plenty of oxygen and minute crustacea in the early stages of growth of the young fry does not continue after they become more advanced. As the water is taken from the pond above the hatchery it is greatly diminished in the dry weather generally prevailing in June and July when we need a generous supply bringing with it food for the young fish. When conditions obtain such as have occurred for the last two seasons, the vegetable life in the ponds, and especially the algae, makes a very rapid growth. The algae cause a great deal of trouble when taking the advanced fry and fingerlings out of the ponds, as the young fish become entangled and a great many of them are gilled. Often, in taking the bass out of the nets for shipment, we find them rolled in the grass, bruised and dead.

This past season we experienced great difficulty in getting our fingerlings in several of the ponds.

As to artificial or ground food for fry and fingerlings, such as the white meat of pickerel, chub and suckers, we have ground it fine, strained it through cheese cloth, and when we put it in the tank or ponds the fry or fingerlings would go to it and turn away from it; but they would not touch it. We have tried very patiently to induce the young bass to eat ground food but without success so far. Even in this month (December) we feed small chubs or suckers to the eighteen small mouthed fingerlings which we have at the hatchery. This is perhaps unusual at this time of the year when the bass are usually dormant. Older bass, like brood bass which have been in captivity for some time, will, perhaps, take ground food.

The young bass devour black fly larvae very readily. The fry or fingerlings will devour, if they can, anything that has life. We have fed them small worms, and we have had specimens of fingerlings that have choked on live fish almost as large as themselves.

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Two years ago 150,000 fry were taken out of one pond and placed in a larger and cleaner pond. At the end of a week, I could find no trace of them. What became of them? This is a problem I have tried hard to solve. It is true, we have many snakes around the ponds, also frogs and turtles which destroy bass. The men employed kill all they can catch from early spring until late in the fall; but what these enemies destroy is only a drop in the bucket compared with the number that disappear.— Reported by Dan E. Miller, Foreman, Constantia, N. Y., December 4, 1913.

FOOD OF BLACK BASS

At the Linlithgo Station of the Conservation Commission, the larvae of one of the black flies, (*Simulium sp.*), forms a large part of the early food of the small mouthed bass.

Early in July, 1913, a collection of freshwater crustaceans (Entomostraca) taken in the ponds of the Oneida Hatchery, was sent to the U. S. National Museum, Washington, D. C., where through the courtesy of the Assistant Secretary, Dr. Richard Rathbun, the species were identified by Mr. A. A. Doolittle. Mr. Doolittle's report upon these crustaceans which are found to form the chief portion of the food of small mouthed black bass fry in the spring and early summer months, is as follows:

"The examination of the contents of the vial has been completed, and the 'natural food of young bass' collected at Constantia, on Oneida Lake, N. Y., June 5, 1913, by D. E. Miller, as the contents are labeled, consists of:

	Approximate number of specimens	Percentage of specimens
Cyclops ater	2	0.045
Cyclops serrulatus	2	0.045
Sida crystallina	3	0.068
Simocephalus vetulus	3	0.068
Scapholeberis mucronata	1565	35.712
Bosmina obtusirostris	2	0.045
Chydorus sphaericus	5	0.114
Polyphemus pediculus	2800	63.900
Totals	4,382	99.997

"Polyphemus will usually predominate until late August as a natural food for young fish living in lakes and feeding along

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banks. The rest of the food will usually be divided among thirty species, more or less, according to the various chances of wandering, weediness of feeding grounds, time of feeding, etc. Scapholeberis, as observed by the writer in the case of about fifty young bass, is about 1 per cent. of their food.

"Very respectfully,

"(Signed) A. A. DOOLITTLE."

FLATFISH

During the month of March, 1913, Foreman Walters, of Cold Spring Harbor Hatchery, hatched and planted 70,000,000 flatfish.

FISH ENEMIES

At the Chautauqua Station, in 1913, a shitepoke (a species of heron) destroyed a number of trout, but was finally captured and destroyed. The crow blackbird was also frequently seen taking trout in the cement ponds outside of the hatchery building and many of these birds were killed to protect the trout.

In May, 1913, the foreman of the Adirondack Hatchery reported that the young Chateaugay Lake whitefish which he was trying to rear in the hatchery were killed by hydra which are very numerous in the lake water which comes into the deep pipe. Through the courtesy of the assistant secretary of the Smithsonian Institution, in charge of the U. S. National Museum, this was identified as *Hydra fusca*.

FISH DISEASES

An epidemic among trout at the Caledonia hatchery broke out early in July, 1913. Fingerling brook trout, brown trout and rainbow trout were affected by a vegetable parasite known as *Bacterium truttae* which originates in putrefying organic wastes. It was a surprise to see the rainbow trout attacked because this trout is generally immune to such parasites. The damage caused was considerable; but was partially controlled by the free use of salt, and by thinning out the fish. The conditions were aggravated by the intensely warm weather. At this time the trout at the auxiliary station, at Guthrie's, were all in prime condition owing to the lower temperature and purity of the spring water.

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RESCUE OF GAME FISH

The following report on the rescue work at the western wide waters of the Erie Canal, in Rochester, was made by Foreman Frank Redband, November 22, 1912:

"I have been fishing at the western widewaters in Rochester, and find it pretty hard work. It is all full of snags so that it is impossible to haul seines. We tore the net all to pieces every time we made a haul. We secured only 225 black bass. The men who were hauling the seines were disgusted and said they would not fish there any longer. Peter Knobloch, of Lyons, was with me, and he thought it would not pay to stay any longer. We fished during two days. We had fishermen from Irondequoit Bay to haul the seine, and they had a good one. If there had been any fish there, I think they would have taken them, for they did their best to try to catch them."

Foreman Wallace D. Rhines, of the Linlithgo Station, was sent by the Conservation Commission to Nassau Lake, October 23, 1912, to rescue from a little cove connected at high water with the lake, but cut off from it when the waters are low, the food and game fish known to be imprisoned in the cove. If the fish had not been removed they would all have been killed by freezing.

Mr. Rhines has just reported the transfer of the following fish to the live waters of the lake:

Bullheads	50,000
Pickerel	100
Calico bass	500
Sunfish	1,000
Large mouthed bass	50
Yellow perch	250

The cove is very muddy and seining operations worked up the mud so much that the work had to be suspended temporarily; but, if possible, Mr. Rhines will go to the place again before ice makes and take out the remaining fish which are chiefly bullheads.

The fish filled ten thirty-quart cans almost solidly.

The presence of these fish in Best's Cove was discovered by Game Protector James A. Colloton who assisted in their rescue.

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EXAMINATION OF WATERS

(Cossayuna Lake and Vicinity)

On June 25, I visited Cossayuna Lake, Hedges Pond, Schoolhouse Pond and Lake Lauderdale in company with Protector Cruikshank.

In Cossayuna Lake there were many dead sunfish on or near the spawning beds of that fish, evidently the cause of death having been the fighting of the males during the breeding season. One yellow perch and one black bass were also seen, and both of these died from injuries.

Hedges Pond was next examined. Here we met William H. Hoyt, Cambridge, R. F. D. 1, who is familiar with the pond, and furnished certain information about the fish inhabiting it. Hedges Pond contains about 500 acres. The fish in it are bullheads, suckers, ciscoes, pikeperch, yellow perch, sunfish, rock bass, black bass, pickerel, so called, etc. The cisco is a fine species, and is very abundant. It rises to the surface at certain seasons and takes the hook. Mrs. Hoyt saw a school of ciscoes in July or August and caught one of them with a worm.

The outlet of Hedges is Flax Mill Brook which flows north into the Battenkill.

Schoolhouse Pond is a small body of water south of Hedges Pond. It is noted for its black bass. The fishing was fine at the time of our visit.

Still farther south is Lake Lauderdale which contains whitefish, black bass of the two species, pikeperch, bullheads, sunfish, yellow perch and a few large pike. Minnows are sometimes present. Mr. B. M. Wilson, Cambridge, R. F. D. No. 1, lives on the lake and is familiar with its fish. Lauderdale has an outlet named Blair's Brook which flows south through Cambridge.

EGG COLLECTING SEASON

Adirondack Hatchery:

Brook trout, Oct. 9 to Nov. 26. From Bone Pond (Oct. 16 to Nov. 15). Pollywog Pond (Oct. 15 to Oct. 22); Little Clear Lake and outlet (Oct 23 to Nov. 22); Bone Pond furnished most of the eggs.

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Brown trout, Oct. 15 to Nov. 10. From Little Green Pond.

Lake trout, Oct. 15 to Oct. 29. From Lake Placid. Little Green Pond (Oct. 15 to Nov. 10); Little Clear Pond (Oct. 22 to Nov. 26); Big Clear Pond (Oct. 16 to Nov. 7).

Whitefish, Nov. 1 to Nov. 13. From Lake Placid (Nov. 7 to 13); Little Clear (Nov. 1 to 11); Big Clear Pond (Nov. 1 to 12); Hoel Pond (Nov. 3 to 9).

Frostfish, Nov. 13 to 25. From Hoel Pond (Nov. 18 to 25); Big Clear Pond (Nov. 13 to 17).

Fulton Chain Hatchery:

Brook trout, Oct. 9 to 23.
Lake trout, Oct. 24 to Nov. 11.
Whitefish, Nov. 5 to 13.
Frostfish, Nov. 10 to 24.

Pleasant Valley Hatchery:

Brook trout Nov. 29, pond fish.
Brown trout, Dec. 17, pond fish.
Lake trout, Dec. 1 to 7, Lake Keuka.

Caledonia Hatchery:

Brown trout usually begin to spawn in October.

COURTESIES

The Commission is again indebted to the Southside Sportsmens' Club of Long Island for a large collection of prime brook trout eggs furnished to the Cold Spring Harbor Station for distribution to several hatcheries of the State.

The Pennsylvania Fisheries Commission presented to the Commission 25,000 lake trout fry which were received on April 3, 1913, at the Bath Hatchery. The same Commission furnished to the Linlithgo Hatchery during the shad season of 1913, 840,000 shad eggs which were developed into fry and formed part of the distribution of the year.

The list of fish given below represents the exhibit of the Commission at the State Fair at Syracuse in September, 1913. The game fish that remained alive after the close of the Fair were

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Photo by J. A. Glenn.

Shipping pike perch eggs, Oneida Hatchery, Constantia, N. Y.

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given to the Onondaga Anglers Association for planting in accordance with the statement herewith following:

Application			
47,795.....	7 black bass adults....	Jamesville reservoir..	Oneida hatchery.
47,796.....	20 miscellaneous adults..	Onondaga lake.....	Oneida hatchery.
47,797.....	10 brook adults.....	Conklin brook.....	Adirondack hatchery.
47,798.....	9 brook adults.....	Pool's brook.....	Adirondack hatchery.
47,799.....	100 brook fingerlings.....	Pool's brook.....	Adirondack hatchery.
47,800.....	100 brook fingerlings.....	Geddes brook.....	Caledonia.
47,801.....	12 Rainbow adults.....	Onondaga creek.....	Caledonia.
47,802.....	22 brown adults.....	Onondaga creek.....	Caledonia.
47,803.....	8 brown adults.....	Limestone creek.....	Caledonia.
47,804.....	10 rainbow adults.....	Limestone creek.....	Caledonia.
47,805.....	34 rainbow adults.....	Butternut creek.....	Caledonia.

These waters are all in Onondaga county. The attendants reported that the fish kept very well during the fair, and with comparatively very small loss although the water this year was warmer than usual, on which account, towards the end of the week, the coarse fish developed fungus.

Respectfully submitted,

TARLETON H. BEAN,

Fish Culturist.

Albany, N. Y., December 10, 1913.

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